GARMIN

# G500H

## Pilot's Guide

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This manual reflects the operation of System Software version 6.00, or later. Some differences in operation may be observed when comparing the information in this manual to later software versions.

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To obtain warranty service, contact your local Garmin Authorized Service Center. For assistance in locating a Service Center near you, visit the Garmin web site at http://www.garmin.com or contact Garmin Customer Service at 866-739-5687.

***WARNING:*** *Navigation and terrain separation must NOT be predicated upon the use of the terrain function. The G500H Terrain Proximity feature is NOT intended to be used as a primary reference for terrain avoidance and does not relieve the pilot from the responsibility of being aware of surroundings during flight. The Terrain Proximity feature is only to be used as an aid for terrain avoidance and is not certified for use in applications requiring a certified terrain awareness system. Terrain data is obtained from third party sources. Garmin is not able to independently verify the accuracy of the terrain data.*

***WARNING:*** *The displayed minimum safe altitudes (MSAs) are only advisory in nature and should not be relied upon as the sole source of obstacle and terrain avoidance information. Always refer to current aeronautical charts for appropriate minimum clearance altitudes.*

***WARNING:*** *The Garmin G500H has a very high degree of functional integrity. However, the pilot must recognize that providing monitoring and/or self-test capability for all conceivable system failures is not practical. Although unlikely, it may be possible for erroneous operation to occur without a fault indication shown by the G500H. It is thus the responsibility of the pilot to detect such an occurrence by means of cross-checking with all redundant or correlated information available in the cockpit.*

***WARNING:*** *The altitude calculated by GPS receivers is geometric height above Mean Sea Level and could vary significantly from the altitude displayed by pressure altimeters, such as the output from the GDC 74H Air Data Computer, or other altimeters in aircraft. GPS altitude should never be used for vertical navigation. Always use pressure altitude displayed by the G500H PFD or other pressure altimeters in aircraft.*

***WARNING:*** *Do not use outdated database information. Databases used in the G500H system must be updated regularly in order to ensure that the information remains current. Pilots using an outdated database do so entirely at their own risk.*

***WARNING:*** *Do not use basemap (land and water data) information for primary navigation. Basemap data is intended only to supplement other approved navigation data sources and should be considered as an aid to enhance situational awareness.*

***WARNING:** Traffic information shown on the G500H Multi Function Display is provided as an aid in visually acquiring traffic. Pilots must maneuver the aircraft based only upon ATC guidance or positive visual acquisition of conflicting traffic.*

***WARNING:** Datalink weather data should not be used for hazardous weather penetration. Weather information provided by the GDL 69/69A is approved only for weather avoidance, not penetration.*

***WARNING:** Datalink weather radar data is to be used for long-range planning purposes only. Due to inherent delays in data transmission and the relative age of the data, Datalink weather radar data should not be used for short-range weather avoidance.*

***WARNING:** For safety reasons, G500H operational procedures must be learned on the ground.*

***WARNING:** To reduce the risk of unsafe operation, carefully review and understand all aspects of the G500H Pilot's Guide. Thoroughly practice basic operation prior to actual use. During flight operations, carefully compare indications from the G500H to all available navigation sources, including the information from other NAVAIDs, visual sightings, charts, etc. For safety purposes, always resolve any discrepancies before continuing navigation.*

***WARNING:** Never use the G500H to attempt to penetrate a thunderstorm. Both the FAA Advisory Circular, Subject: Thunderstorms, and the Airman's Information Manual (AIM) recommend avoiding "by at least 20 miles any thunderstorm identified as severe or giving an intense radar echo."*

***WARNING:** Exceeding 200 deg/second in pitch or roll may invalidate AHRS attitude provided to the G500H.*

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***WARNING:*** *Because of anomalies in the earth's magnetic field, operating the G500H within the following areas could result in loss of reliable attitude and heading indications. North of 70° North latitude and south of 70° South latitude. An area north of 65° North latitude and between longitude 75° West and 120° West. An area north of 70° North latitude and between longitude 70° West and 128° West. An area north of 70° North latitude and between longitude 85° East and 114° West. An area south of 55° South latitude between longitude 120° East and 165° East.*

***WARNING:*** *Do not use Terrain-HSVT information for primary terrain avoidance. Terrain-HSVT is intended only to enhance situational awareness.*

***CAUTION****: The United States government operates the Global Positioning System and is solely responsible for its accuracy and maintenance. The GPS system is subject to changes which could affect the accuracy and performance of all GPS equipment. Portions of the Garmin G500H utilize GPS as a precision electronic NAVigation AID (NAVAID). Therefore, as with all NAVAIDs, information presented by the G500H can be misused or misinterpreted and, therefore, become unsafe.*

***CAUTION****: The Garmin G500H does not contain any user-serviceable parts. Repairs should only be made by an authorized Garmin service center. Unauthorized repairs or modifications could void both the warranty and the pilot's authority to operate this device under FAA/FCC regulations.*

***CAUTION****: The G500H PFD and MFD displays use a lens coated with a special anti-reflective coating that is very sensitive to skin oils, waxes, and abrasive cleaners. CLEANERS CONTAINING AMMONIA WILL HARM THE ANTI-REFLECTIVE COATING. It is very important to clean the lens using a clean, lint-free cloth and an eyeglass lens cleaner that is specified as safe for anti-reflective coatings.*

***CAUTION****: When interfaced with a GSR56 Iridium transceiver only one SD card may be present in the GDU620 and it must be in the lower slot.*

***CAUTION****: Garmin would like to remind pilots flying with GDL 69/69A-equipped aircraft that TFRs are only advisory and are not a replacement for a thorough preflight briefing on TFR times and locations. Always confirm TFR data through official sources and contact your Flight Service Station for interpretation of TFR data.*

*NOTE: Interference from GPS repeaters operating inside nearby hangars can cause an intermittent loss of attitude and heading displays while the aircraft is on the ground. Moving the aircraft more than 100 feet away from the source of the interference should alleviate the condition.*

*NOTE: All visual depictions contained within this document, including screen images of the G500H bezel and displays, are subject to change and may not reflect the most current GDU 620 system. Depictions of equipment may differ slightly from the actual equipment.*

*NOTE: This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.*

*NOTE: Terrain data is not displayed when the aircraft latitude is greater than 75° North or 60° South.*

*NOTE: This product, its packaging, and its components contain chemicals known to the State of California to cause cancer, birth defects, or reproductive harm. This notice is being provided in accordance with California's Proposition 65. If you have any questions or would like additional information, please refer to our web site at www.garmin.com/prop65.*

*NOTE: Terrain-HSVT is standard when the Garmin Synthetic Vision Technology™ (SVT) option is installed.*

| Record of Revisions | | | |
|---|---|---|---|
| **Part Number** | **Revision** | **Date** | **Description** |
| 190-01150-02 | A | 1/27/10 | Production release. |
| | B | 4/1/10 | Update Airspeed Tape markings. |
| | C | 11/19/10 | Updates for SW Versions 4.00 and 5.00. |
| | D | 08/01/11 | Added updates for SW Version 6.00. |
| | E | 12/27/11 | Removed inaccurate obstacle description on page A-4. |
| | F | 01/17/12 | Removed extraneous information in Sec. 5, Additional Features. |
| | | | |

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Updating the Jeppesen Aviation Database ........ A-2
Garmin Databases ........ A-4
Updating Garmin databases ........ A-5

**Index ........ B-1**

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# 1 SYSTEM OVERVIEW

## 1.1 System Description

This section provides an overview of the G500H Avionics Display System. The G500H system is an integrated display system that presents primary flight instrumentation, navigation, and a moving map to the pilot through large-format displays.

In normal operating mode, the Primary Flight Display (PFD) presents graphical flight instrumentation (attitude, heading, airspeed, altitude, vertical speed), replacing the traditional flight instrument cluster. The Multi-Function Display (MFD) normally displays a full-color moving map with navigation information, as well as supplemental data.

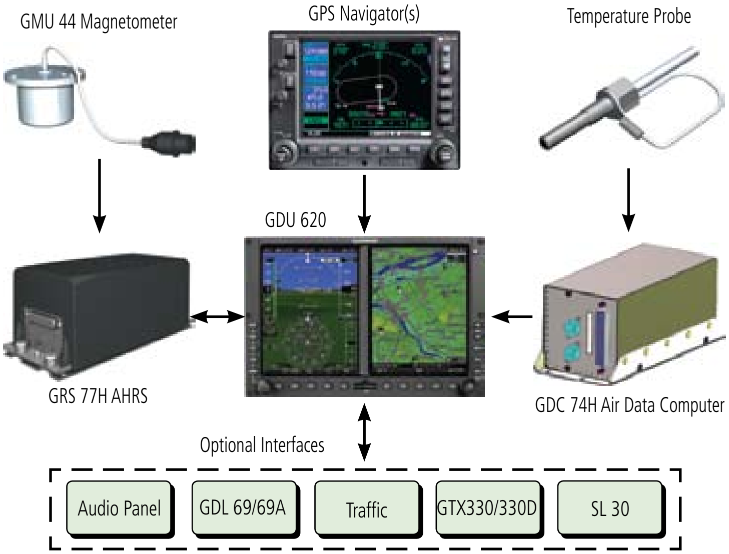

GMU 44 Magnetometer
GPS Navigator(s)
Temperature Probe
GDU 620
GRS 77H AHRS
GDC 74H Air Data Computer
Optional Interfaces
Audio Panel
GDL 69/69A
Traffic
GTX330/330D
SL 30

Figure 1-1  G500H System (LRU Configuration)

The system consists of the following Line Replaceable Units (LRUs):

- **GDU 620** Primary Flight Display (PFD) and Multi Function Display (MFD)
- **GDC 74H** Air Data Computer (ADC)
- **GRS 77H** Attitude and Heading Reference System (AHRS)
- **GNS 480, CNX80, GNS 400W series, or GNS 500W series,** or a compatible GPS Navigator

- **Temperature Probe** (such as the GTP 59)
- **GMU 44** Magnetometer
- **GDL 69/69A** Satellite Data Link Receiver (optional)
- **GSR 56** Satellite Data Link Receiver (optional)
- **SL30 NavCom** (optional)
- **Autopilot/Flight Director** (optional)
- **ADF** (optional)
- **Garmin GTS or GTX** traffic awareness systems, or selected 3rd party devices (optional)
- **Audio Panel** (optional)
- **GAD 43** Adapter (optional)
- **Garmin GWX** systems or selected 3rd party radar (optional)

### 1.1.1 Line Replaceable Units (LRU)

This guide covers the operation of the GDU 620 display as integrated in the G500H system. The G500H Avionics Display System is an avionics suite designed to replace the traditional flight instrument cluster. The system combines primary flight instrumentation, navigational information, and a moving map all displayed on dual color screens. The G500H system is composed of sub-units or Line Replaceable Units (LRUs). LRUs have a modular design, which greatly eases troubleshooting and maintenance of the G500H system. A failure or problem can be isolated to a particular LRU, which can be replaced quickly and easily. Each LRU has a particular function, or set of functions, that contributes to the system's operation.

## 1.1.2 GDU 620

The GDU 620 has dual VGA (640 x 480 pixels) 6.5 inch LCD displays. The right side of the GDU is a PFD and the left side is the MFD. In some models or installations, the PFD and MFD and their controls are switched to the other side. The MFD shows a moving map, flight plan, weather, and other supplemental data. The PFD shows primary flight information, in place of traditional pitot-static and gyroscopic systems and also provides an HSI for navigation.

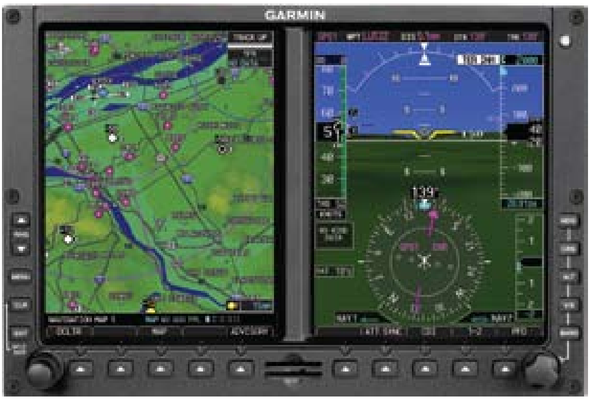


Figure 1-2 GDU 620 PFD and MFD

## 1.1.3 GDC 74H

The GDC 74H Air Data Computer (ADC) compiles information from the pitot/static system and an Outside Air Temperature (OAT) sensor. The GDC 74H provides pressure altitude, airspeed, vertical speed, and OAT information to the G500H system. The GDC 74H communicates with the GDU 620 and GRS 77H using an ARINC 429 digital interface.

Figure 1-3 GDC 74H Air Data Computer

## 1.1.4 GRS 77H

The GRS 77H is an Attitude and Heading Reference System (AHRS) unit that provides aircraft attitude information to the G500H display. The unit contains advanced accelerometers and rate sensors. In addition, the GRS 77H interfaces with both the GDC 74H Air Data Computer and the GMU 44 magnetometer. The GRS 77H also utilizes GPS data forwarded from the GDU 620. Actual attitude and heading information is sent to the GDU 620 using an ARINC 429 digital interface.

**Figure 1-4 GRS 77H AHRS**

The IGRF (International Geomagnetic Reference Field) model is contained in the GRS 77H and is only updated once every five years. The IGRF model is part of the Navigation Database. At system power-up, the IGRF models in the GRS 77H and in the Navigation Database are compared, and if the IGRF model in the GRS 77H is out of date, the user is prompted to update the IGRF model in the GRS 77H. The prompt will appear after the G500H splash screen is acknowledged on the MFD.

## 1.1.5 GMU 44

The GMU 44 magnetometer senses the earth's magnetic field. Data is sent to the GRS 77H AHRS for processing to determine aircraft magnetic heading. This unit receives power directly from the GRS 77H and communicates with the GRS 77H using a RS-485 digital interface.

**Figure 1-5 GMU 44 Magnetometer**

## 1.1.6 GTX 330/330D (Optional)

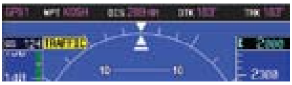


Figure 1-6 GTX 330/330D Mode S Transponder

The GTX 330/330D is a solid-state transponder that provides Modes A, C, and S functions. The transponder provides traffic information to the display through an ARINC 429 digital interface.

***NOTE:*** *GTX 33/33D can also be used to display traffic information on the GDU 620.*

## 1.1.7 GTP 59

The GTP 59 temperature probe provides Outside Air Temperature (OAT) data to the GDC 74H.

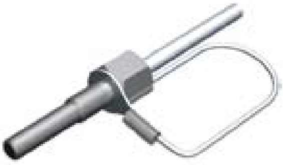


Figure 1-7 GTP 59 Temperature Probe

## 1.1.8 GSR 56

The GSR 56 is an Iridium® satellite transceiver that supports voice telephone calls, aircraft position reporting, and world wide weather products.

## 1.1.9 GDL 69/69A (Optional)

The GDL 69/69A is an XM Satellite Radio Data Link Receiver that receives broadcast weather data. The GDL 69A is the same as the GDL 69 with the addition of an XM Satellite Radio audio entertainment receiver. Weather data and control of audio channel and volume is displayed on the MFD, via a High-Speed Data Bus (HSDB) Ethernet connection. The GDL 69A is also interfaced to an audio panel for distribution of the audio signal. A subscription to the XM Satellite Radio service is required to enable the GDL 69/69A capability.

**Figure 1-8 GDL 69/69A XM Satellite Radio Data Link Receiver**

## 1.1.10 Garmin Navigator Interface

The G500H system requires connection to at least one external Garmin WAAS GPS navigator, such as the 400W/500W series or GNS 480.

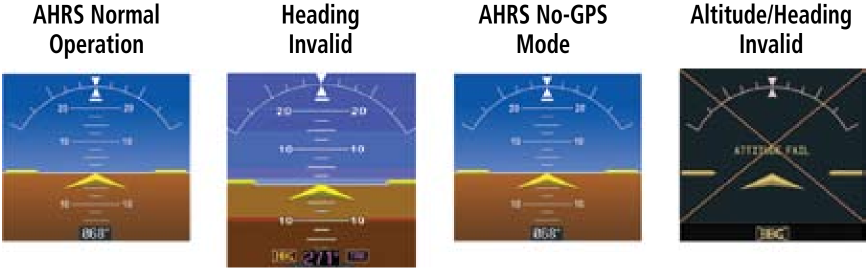
## 1.1.11 Attitude Heading Reference System (AHRS)

***NOTE:** Aggressive maneuvering while AHRS is not operating in normal mode may degrade AHRS accuracy.*

Attitude and heading information is displayed on the PFD when the AHRS receives appropriate combinations of information from the external sensor inputs.

| AHRS Inputs | | | AHRS Mode | AHRS Outputs | |
|---|---|---|---|---|---|
| GPS | Magnetometer | Air Data | | Attitude | Heading |
| Available | Available | — | Normal | Available | Available |
| Available | Unavailable | Available | No Mag | Available | GPS Track |
| Available | Unavailable | Unavailable | No Air/ No Mag | Available | GPS Track |
| Unavailable | Available | Available | No GPS | Available | Available |
| Unavailable | Available | Unavailable | Fail | Unavailable | Unavailable |
| Unavailable | Unavailable | — | Fail | Unavailable | Unavailable |

**Table 1-1 AHRS Operation**



AHRS Normal Operation

Heading Invalid

AHRS No-GPS Mode

Altitude/Heading Invalid

**Figure 1-9 AHRS Operation**

Loss of GPS, magnetometer, or air data inputs is communicated to the pilot by message advisory alerts (refer to Section 6 for specific AHRS alert information). Any failure of the internal AHRS inertial sensors results in loss of attitude and heading information (indicated by red “X” flags over the corresponding flight instruments).

A maximum of two GPS inputs are provided to the AHRS. If GPS information from one of the inputs fails, the AHRS uses the remaining GPS input and an alert message is issued to inform the pilot. If both GPS inputs fail, the AHRS will continue to provide attitude and heading information to the PFD as long as magnetometer and airspeed data are available and valid.

If the magnetometer input fails, the AHRS continues to output valid attitude information and GPS Track information is used; however, the heading display on the PFD is flagged as invalid with a red "X," "TRK" in magenta is annunciated to the right of the Track value, and the Track value color is changed from white to magenta.

***NOTE:** In this case the magnetic standby compass and GPS ground track can be used to keep the aircraft on the desired heading.*

Note that SVT is turned off in "track-based reversionary mode" and must be manually re-enabled when heading is restored. Also, map orientations change from HDG UP to TRACK UP and must be manually changed back after heading is restored.

When heading fails the heading bug is not removed and the GDU continues driving the autopilot heading error output using track in place of heading.

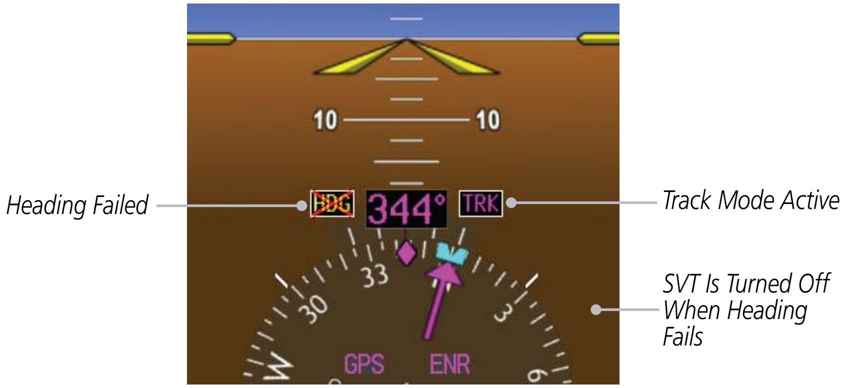


**Figure 1-10 Track Mode shown as Active when Heading Info has failed**

Failure of the air data input has no effect on the AHRS output while AHRS is receiving valid GPS information. Invalid or unavailable airspeed data in addition to complete GPS failure results in loss of all attitude and heading information.

***NOTE:** Fastest AHRS alignment is achieved with the aircraft stationary and with all AHRS inputs valid (3-D GPS position, magnetometer, and air data). During initial power up on the ground, no GPS position and/or magnetic anomalies are common. If the aircraft is taxied prior to AHRS alignment, alignment may be delayed until after a valid 3-D GPS position is available.*

*NOTE: During in-flight alignment of the AHRS, minimize aircraft maneuvering. The AHRS will align with shallow banking and pitch angles (less than 20 degrees of roll or 5 degrees of pitch). AHRS alignment may not be possible during more aggressive maneuvers.*

## 1.1.12 Secure Digital Cards

The G500H System uses Secure Digital (SD) cards to load and store various types of data. For basic flight operations, SD cards are required for Terrain, Obstacle, FliteChart, SafeTaxi, and ChartView database storage as well as Jeppesen aviation and ChartView database updates. The Aviation Database update card is inserted in the upper SD card slot for database updates and then removed. Other database cards are normally located in the lower SD card slot. ChartView is an optional feature that requires enablement by a Garmin dealer.

***NOTE:** Ensure the GDU 620 is powered off before inserting or removing an SD card.*

***NOTE:** Refer to Appendix A for instructions on updating the aviation database.*

### Inserting an SD Card

1) Insert the SD card in the SD card slot (the front of the card should be flush with the face of the display bezel).
2) To eject the card, gently press on the SD card to release the spring latch.

## 1.2 System Power Up

✓ ***NOTE:*** *See the Aircraft Flight Manual (AFM) for specific procedures concerning avionics power application and emergency power supply operation.*

✓ ***NOTE:*** *Refer to Section 6 for system-specific annunciations and alerts.*

The G500H System is integrated with the aircraft electrical system and receives power directly from electrical busses. The GDU 620 and supporting sub-systems include both power-on and continuous built-in test features that exercise the processor, memory, external inputs, and outputs to ensure safe operation.

During system initialization, test annunciations are displayed. All system annunciations should disappear typically within the first 30 seconds after power-up. Upon power-up, bezel key backlights also become momentarily illuminated on the GDU 620 display bezel.

On the PFD, the AHRS begins to initialize and “AHRS ALIGN: Keep Wings Level” is displayed. The AHRS should display valid attitude and heading fields typically within the first minute and a half after power-up. The AHRS can align itself during level flight.

✓ ***NOTE:*** *Fastest AHRS alignment is achieved with the aircraft stationary and with all AHRS inputs valid (3-D GPS position, magnetometer, and air data). During initial power up on the ground, no GPS position and/or magnetic anomalies are common. If the aircraft is taxied prior to AHRS alignment, alignment may be delayed until after a valid 3-D GPS position is available.*

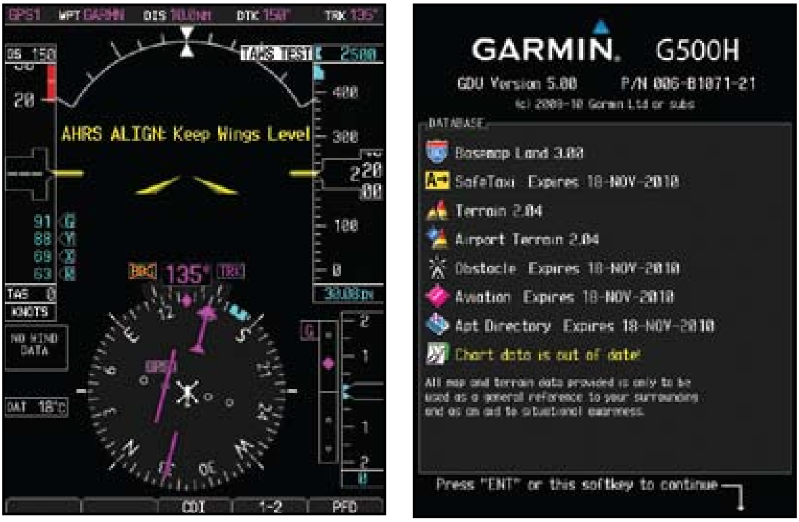
✓ ***NOTE:*** *During in-flight alignment of the AHRS, minimize aircraft maneuvering. The AHRS will align with shallow banking and pitch angles (less than 20 degrees of roll or 5 degrees of pitch). AHRS alignment may not be possible during more aggressive maneuvers.*

When the MFD powers up, the splash screen displays the following information:

- Software version and part number
- Copyright
- Land database name and version
- Obstacle database name and version
- Terrain database name and version
- Aviation database name, version, and effective dates
- Airport Directory expiration date

Current database information includes valid operating dates, cycle number, and database type. When this information has been reviewed for currency (to ensure that no databases have expired), the pilot is prompted to continue.

Databases are displayed in white if they are determined to be current. Databases are displayed in yellow if they have expired, are not yet effective, or if the current date/time is not yet available from the GPS.



GPS1
WPT GARMIN
DIS 10.0NM
DTK 150°
TRK 135°
TAWS TEST
2500
400
300
220
100
0
30.00IN
AHRS ALIGN: Keep Wings Level
HDG
135°
TRK
TAS 0
KNOTS
NO WIND DATA
OAT 18°C
GPS1
CDI
1-2
PFD

GARMIN G500H

GDU Version 5.00    P/N 006-B1071-21

(c) 2009-10 Garmin Ltd or subs

DATABASE

Basemap Land 3.00

SafeTaxi Expires 18-NOV-2010

Terrain 2.04

Airport Terrain 2.04

Obstacle Expires 18-NOV-2010

Aviation Expires 18-NOV-2010

Apt Directory Expires 18-NOV-2010

Chart data is out of date!

All map and terrain data provided is only to be used as a general reference to your surroundings and as an aid to situational awareness.

Press "ENT" or this softkey to continue

Figure 1-11 System Startup Pages

## 1.3 International Geomagnetic Reference Field

The IGRF (International Geomagnetic Reference Field) model is contained in the GRS 77 and is only updated once every five years. The IGRF model is part of the Navigation Database. At system power-up, the IGRF models in the GRS 77 and in the Navigation Database are compared, and if the IGRF model in the GRS 77 is out of date, the user is prompted to update the IGRF model in the GRS 77. The following prompt will appear after the G500H splash screen is acknowledged on the MFD.

> GRS MV DB UPDATE AVAILABLE. UPDATE FROM yyyy TO yyyy (e.g. 2005 to 2010)

Pressing the **ENT** key (or right-most soft key) acknowledges this information and displays the Navigation Map Page. When the interfaced GPS unit has acquired a sufficient number of satellites to determine a position, the aircraft's current position is shown on the Navigation Map Page.

# 1.4 System Operation

***NOTE:** Refer to Section 6 for detailed descriptions of all alerts and annunciations.*

## 1.4.1 Pilot Controls

The GDU 620 controls have been designed to simplify operation of the system and minimize workload and the time required to access functionality. Controls are located on the PFD and MFD bezels and are comprised of a PFD knob, MFD dual concentric knobs, bezel keys, and soft keys.

### 1.4.1.1 PFD Knob

Turning the **PFD** knob adjusts the values for the mode selected by the PFD bezel keys, such as, Heading (HDG), Course (CRS), Altitude (ALT), Vertical Speed (V/S), and Barometric Setting (BARO). The values are shown in a window to the left of the HSI. Pressing the **PFD** knob reverts to the default value of the selected mode.

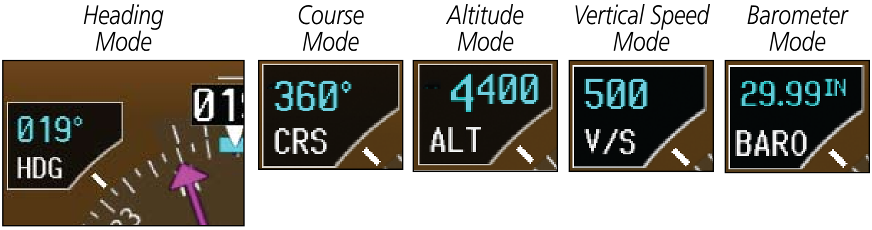


Figure 1-12 Selection Modes Adjusted with the PFD Knob

***NOTE:** After 10 seconds of inactivity in another mode, the **PFD** knob selected mode will revert to Heading mode.*

1. Press the desired PFD mode selection key (**HDG**, **CRS**, **ALT**, **V/S**, or **BARO**). A window will be displayed near the upper right corner of the HSI showing the current value for that mode.
2. Turn the **PFD** knob to select the desired value.

## 1.4.1.2 PFD Bezel Keys

### *Heading (HDG)*

Selects Heading Select mode. Pressing the **PFD** knob in Heading mode will center the Heading Bug on the current Heading. This is the default mode for the **PFD** knob. Set the heading on the HSI by turning the **PFD** knob after pressing the **HDG** key.

### *Course (CRS)*

Selects Course Select mode. Pressing the **PFD** knob in Course mode will center the CDI for a VOR or OBS mode course.

### *Altimeter (ALT)*

Selects Altitude Select mode. Pressing the **PFD** knob in Altitude Select mode will enter the current altitude in the Altitude Select window. Set the Altitude Bug by turning the **PFD** knob after pressing the **ALT** key.

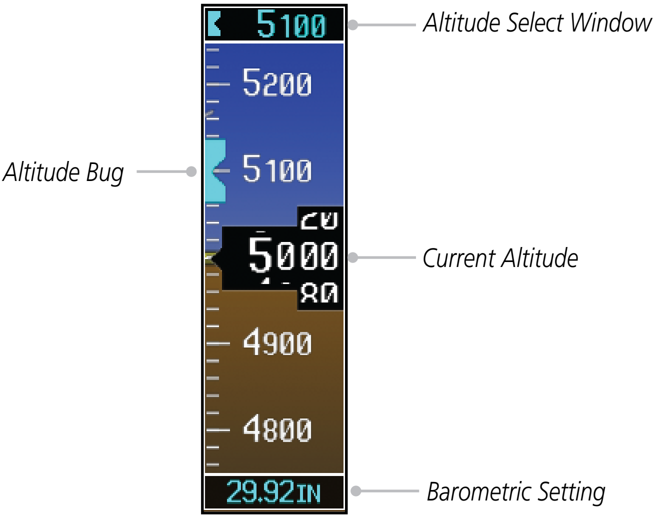

5100
Altitude Select Window
5200
Altitude Bug
5100
20
5000
80
Current Altitude
4900
4800
29.92IN
Barometric Setting

Figure 1-13 Pressing PFD Knob Sets Altitude Select to Current Altitude

### Vertical Speed (V/S)

Selects Vertical Speed (V/S) mode. Pressing the **PFD** knob in V/S mode will synchronize the bug to the current vertical speed.

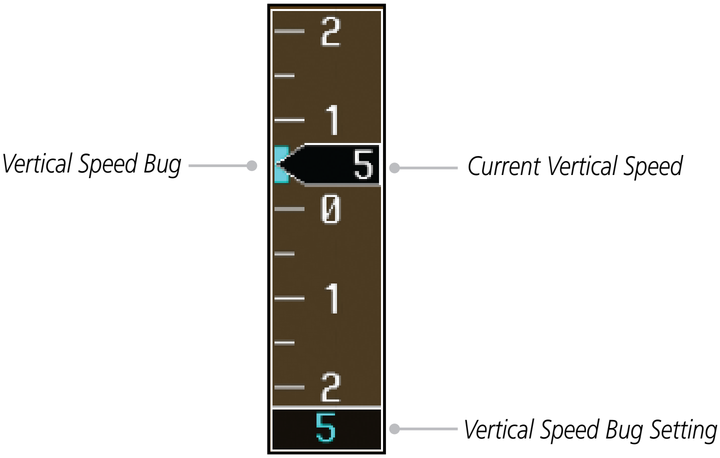

Vertical Speed Bug
Current Vertical Speed
Vertical Speed Bug Setting
2
1
5
0
1
2
5

Figure 1-14  Pressing V/S Knob Sets Vertical Speed Bug to Current Vertical Speed

For helicopters with vertical speed operating limitations, red bands showing Vertical Speed Maximum and Minimum ranges will be shown on the left side of the Vertical Speed tape. When the Vertical Speed Indicator is in one of the red ranges, the background color of the Vertical Speed Indicator will turn red.

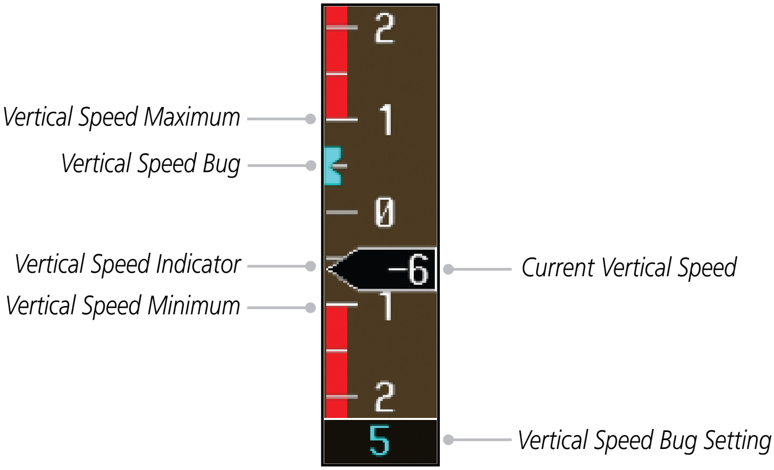

Vertical Speed Maximum
Vertical Speed Bug
Vertical Speed Indicator
Vertical Speed Minimum
Current Vertical Speed
Vertical Speed Bug Setting
2
1
0
-6
1
2
5

Figure 1-15  Vertical Speed Warning Indication

#### *Barometer (BARO)*

Selects Barometric Setting Select mode. Pressing the **PFD** knob in Baro mode will enter the standard pressure (29.92 in/1013 mb) value.

### 1.4.1.3 MFD Knobs

The MFD knobs are for navigating and selecting information on the MFD pages. More details are provided in the MFD section.

#### *Small (Inner) MFD Knob*

Selects a specific page within a page group. Pressing the small **MFD** knob turns the selection cursor ON and OFF. When the cursor is ON, data may be entered in the applicable window by turning the small and large **MFD** knobs. In this case, the large **MFD** knob moves the cursor on the page and the small **MFD** knob selects individual characters or values for the highlighted cursor location.

#### *Large (Outer) MFD Knob*

Selects the MFD page group. When the cursor is ON, the large **MFD** knob moves the cursor to highlight available fields.

### 1.4.1.4 MFD Bezel Keys

#### *Range (RNG)*

Pressing the Range arrow keys changes the range on the Map pages. The Up arrow zooms out. The Down arrow zooms in. The keys also aid in scrolling up and down text pages.

#### *Menu*

Displays a context-sensitive list of options. This list allows the user to access additional features or make setting changes that relate to particular pages.

#### *Enter (ENT)*

Validates or confirms a menu selection or data entry.

#### *Clear (CLR)*

Erases information, cancels entries, or removes page menus. Pressing and holding the **CLR** key displays the Navigation Map 1 page.

## 1.4.2 Using the Soft Key Controls

The soft keys are located along the bottoms of the displays. The soft key labels shown depend on the soft key level or page being displayed. The bezel keys below the soft keys can be used to select the appropriate soft key.

MFD functions indicated by the soft key labels vary depending on the page selected and are located at the bottom of the MFD display. Press the soft key located directly below the soft key label. To select the function indicated on the soft key label, press the soft key directly below the label.

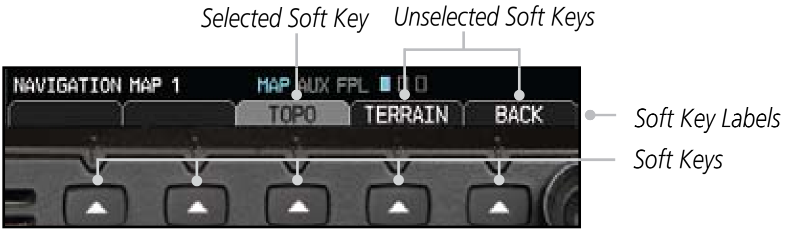

Selected Soft Key
Unselected Soft Keys
NAVIGATION MAP 1
MAP AUX FPL
TOPO
TERRAIN
BACK
Soft Key Labels
Soft Keys

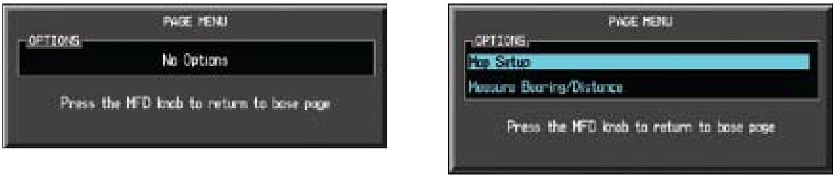
Figure 1-16 MFD Soft Key Layout

## 1.4.3 Using the Page Menus

The GDU 620 has a dedicated **MENU** key that when pressed displays a context-sensitive list of options for functions in the MFD. This options list allows the user to access additional features or make settings changes which specifically relate to the currently displayed window/page. There is no all-encompassing menu. Some menus provide access to additional submenus that are used to view, edit, select, and review options. Menus display "No Options" when there are no options for the window/page selected. Soft key presses do not display menus or submenus.

### Navigating within a Menu

1) Press the **MENU** key to display the menu.
2) Turn the small or large **MFD** knob to scroll through a list of available options (a scroll bar always appears to the right of the window/box when the option list is longer than the window/box).
3) Press the **ENT** key to select the desired option.
4) Press the **CLR** key or **MFD** knob to remove the menu and cancel the operation.


*No Options*

*Options for MAP Window*

Press the MFD knob to return to base page

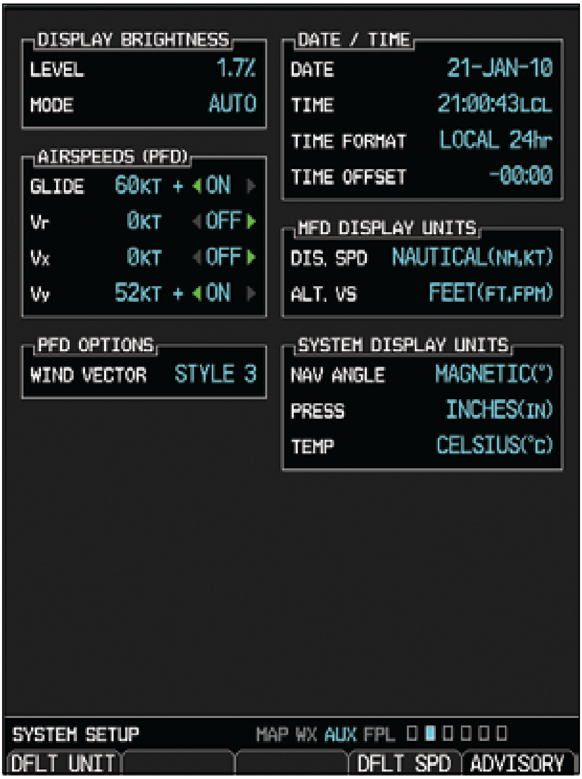
Press the MFD knob to return to base page

**Figure 1-17 Page Menu Examples**

## 1.4.4 System Settings

G500H system settings are managed from the Aux Mode System Setup Page. The following settings can be changed:

- Display Brightness (Mode and Level)
- Airspeed References (Glide and Vy)
- PFD Options (Wind Vector)
- Date/Time (Date, Time, Time Format, and Time Offset)
- MFD Display Units (Distance/Speed and Altitude/Vertical Speed)
- System Display Units (Navigation Angle Reference, Pressure Units, and Temperature Units)



DISPLAY BRIGHTNESS
LEVEL 1.7%
MODE AUTO

AIRSPEEDS (PFD)
GLIDE 60KT + ◂ON ▸
Vr 0KT ◂OFF▸
Vx 0KT ◂OFF▸
Vy 52KT + ◂ON ▸

PFD OPTIONS
WIND VECTOR STYLE 3

DATE / TIME
DATE 21-JAN-10
TIME 21:00:43LCL
TIME FORMAT LOCAL 24hr
TIME OFFSET -00:00

MFD DISPLAY UNITS
DIS, SPD NAUTICAL(NM,KT)
ALT, VS FEET(FT,FPM)

SYSTEM DISPLAY UNITS
NAV ANGLE MAGNETIC(°)
PRESS INCHES(IN)
TEMP CELSIUS(°C)

Figure 1-18 System Setup Page

### System Settings Values

1) From the first AUX page, press the small **MFD** knob and turn the large **MFD** knob to highlight the desired value.
2) Turn the small **MFD** knob to select "ON" or "OFF."
3) Press **ENTER** to save the setting.

More detail on changing settings is in the Section 3 - MFD Aux pages System Settings section.

| Category | Settings | Affected Quantities | Exceptions |
|---|---|---|---|
| Display Brightness | Level<br>Mode | Brightness levels on the PFD and MFD | |
| Airspeeds | Glide<br>$V_R$<br>$V_X$<br>$V_Y$ | Reference markers on PFD airspeed tape | |
| Synchronization | CDI - On/Off<br>BARO - On/Off | Crossfill Nav information to GDU 620 | |
| PFD Options (Wind Vector) | Style 1 - Style 4 | | |
| Date/Time | Date<br>Time<br>Time Format<br>Time Offset | | |
| Distance and Speed | Metric<br>Nautical | Crosstrack error (HSI)<br>Bearing distances (information windows)<br>Distance (information window)<br>Flight plan distances<br>Map ranges<br>DIS, GS, TAS, XTK fields (Navigation Status Box)<br>All distances on MFD<br>All speeds on MFD | Airspeed Indicator True Airspeed (PFD)<br>Wind speed vector<br>Map range (Traffic Page, Terrain Proximity Page)<br>CDI scaling |

| Category | Settings | Affected Quantities | Exceptions |
|---|---|---|---|
| Altitude and Vertical Speed | Feet<br>Meters | All elevations on MFD | Altimeter<br>Vertical Speed Indicator |
| Navigation Angle | Magnetic (North)<br>True (North) | Heading<br>Course<br>Bearing<br>Track<br>Desired Track | |
| Barometric Setting | Inches (in)<br>Hectopascals (hpa) | Barometric pressure on PFD | |
| Temperature | Celsius<br>Fahrenheit | All temperatures on PFD | |

**Table 1-2 Display Units Settings (System Setup Page)**

More detail on changing settings is in the Section 3 - MFD Aux pages System Settings section.

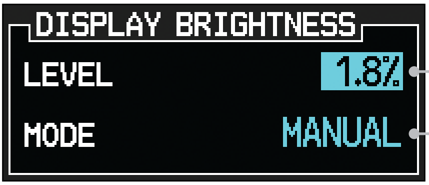
## 1.4.5 Display Backlighting

The backlighting of the PFD and MFD displays and bezel keys can be adjusted automatically or manually. The default setting (automatic backlighting adjustment) uses the photocell located at the top right corner of the bezel to automatically adjust for ambient lighting conditions. Photocell calibration curves are configured by the installer to optimize display appearance through a broad range of cockpit lighting conditions. Manual backlighting adjustment can be accomplished using the existing instrument panel dimmer bus or the following procedures.

### Backlighting Adjustment

1) From the first AUX page, press the small **MFD** knob to highlight the "DISPLAY BRIGHTNESS" "MODE" box.

2) Turn the small **MFD** knob to select the desired brightness Level and then press **ENTER**.



DISPLAY BRIGHTNESS

LEVEL 1.8%

MODE MANUAL

*Manual Adjustment 0.1% to 100% or Auto*

*Auto or Manual*

**Figure 1-19 Display Brightness Adjustment**

3) Turn the large **MFD** knob to highlight the MODE field. Turn the small **MFD** knob to select "AUTO" or "MANUAL."

4) Press **ENT**.

# 2 PRIMARY FLIGHT DISPLAY (PFD)

T Functions on the PFD are accessed by using the bezel keys on the side of the PFD and the soft keys below the PFD.

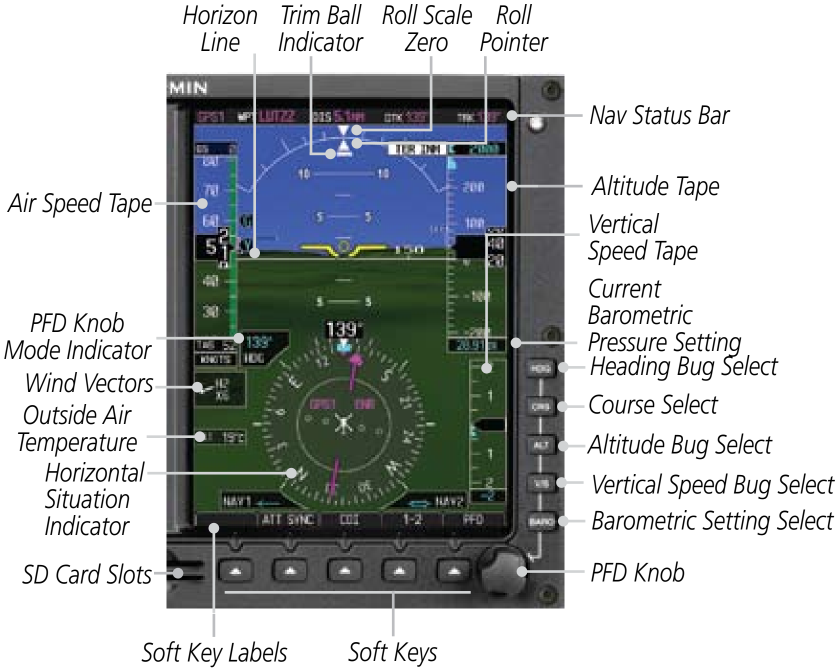

Horizon Line
Trim Ball Indicator
Roll Scale Zero
Roll Pointer
Nav Status Bar
Air Speed Tape
Altitude Tape
Vertical Speed Tape
Current Barometric Pressure Setting
PFD Knob Mode Indicator
Heading Bug Select
Wind Vectors
Course Select
Outside Air Temperature
Altitude Bug Select
Horizontal Situation Indicator
Vertical Speed Bug Select
Barometric Setting Select
SD Card Slots
PFD Knob
Soft Key Labels
Soft Keys

Figure 2-1 PFD Description (Ground Pointer Mode)

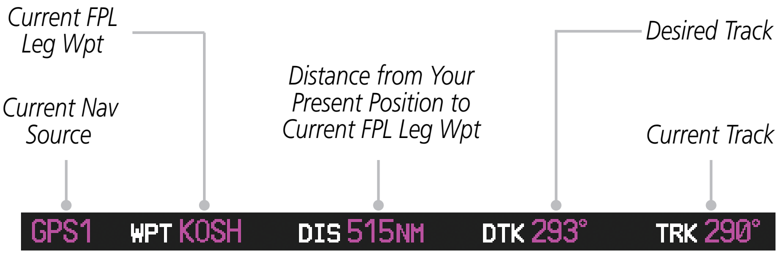

Current FPL Leg Wpt
Current Nav Source
Distance from Your Present Position to Current FPL Leg Wpt
Desired Track
Current Track
GPS1
WPT KOSH
DIS 515NM
DTK 293°
TRK 290°

Figure 2-2 PFD Nav Status Bar Description

***NOTE:** When navigating to a waypoint very far away the DTK, CRS, and TRK values displayed on the GDU 620 may differ from those displayed on the navigator, however the CDI is correct and is the primary means of navigation. This is because the GDU 620 applies magnetic variation corrections for the current aircraft location, but some navigators apply magnetic variation correction for the waypoint location.*

## 2.1 PFD Soft Keys

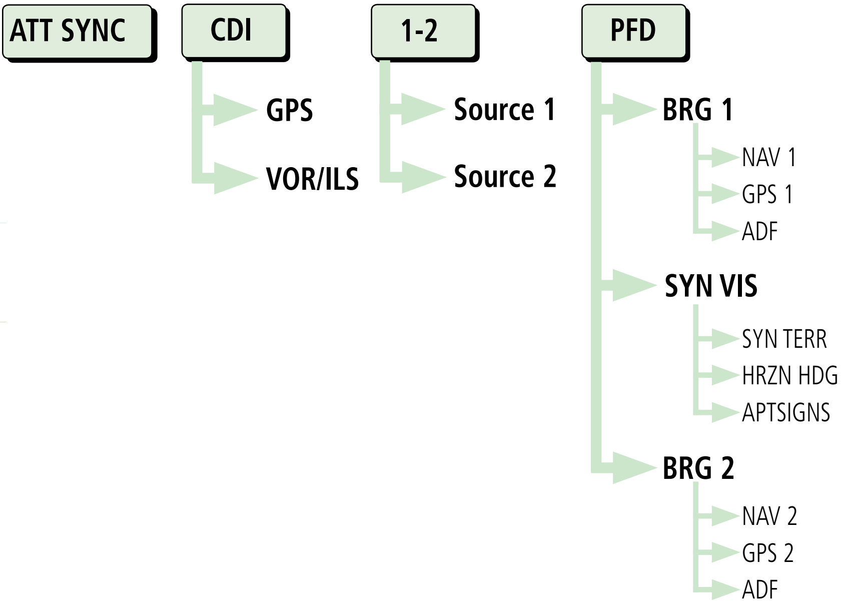

ATT SYNC
CDI
GPS
VOR/ILS
1-2
Source 1
Source 2
PFD
BRG 1
NAV 1
GPS 1
ADF
SYN VIS
SYN TERR
HRZN HDG
APTSIGNS
BRG 2
NAV 2
GPS 2
ADF

**Figure 2-3  PFD Soft Key Diagram**

The soft keys are located along the bottoms of the displays below the soft key labels. The soft key labels shown depend on the soft key level or page being displayed. The soft keys can be used to select the appropriate soft key function.

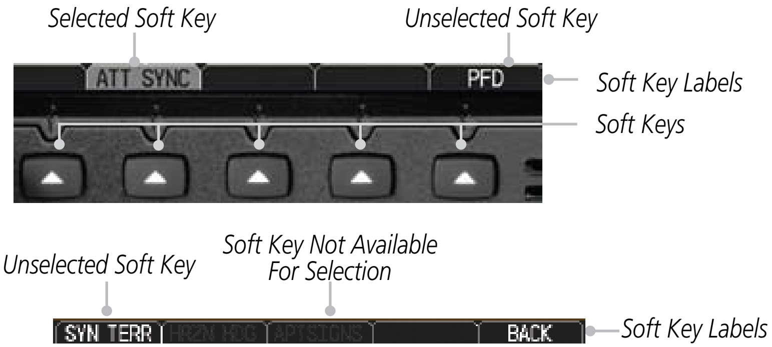

Selected Soft Key
Unselected Soft Key
ATT SYNC
PFD
Soft Key Labels
Soft Keys
Unselected Soft Key
Soft Key Not Available For Selection
SYN TERR
HRZN HDG
APTSIGNS
BACK
Soft Key Labels

**Figure 2-4  PFD Soft Key Layout**

When a soft key is selected, its color changes to black text on gray background and remains this way until it is turned off, at which time it reverts to white text on black background. When a soft key function is disabled, the soft key label is subdued (dimmed). Soft keys revert to the previous level after 45 seconds of inactivity.

***NOTE:** If a soft key is pressed and held for longer than 1 second, it is ignored.*

### CDI

The **CDI** soft key toggles between the selection of GPS or VOR/LOC as the active navigation source. The GDU CDI soft key will change the source in the connected navigator and making a source change in the navigator will be reflected in the GDU 620.

### 1-2

The **1-2** soft key toggles between the available receivers for selected navigation source (i.e. GPS1 and GPS2 or VOR/LOC1 and VOR/LOC2). This soft key will only be present if the system is configured for a second GPS or VOR/LOC.

### ATT SYNC

Pressing the **ATT SYNC** soft key will synchronize the aircraft symbol on the PFD to the horizon line during level flight. The **ATT SYNC** soft key will not be available for selection until the aircraft is near a level pitch attitude (within ±8°).

### PFD

Pressing the **PFD** soft key displays the **BRG1**, **BRG2**, and **BACK** soft keys. The **BRG2** soft key will only be present if the system is configured for a second GPS or VOR/LOC receiver.

### BRG1

The **BRG1** soft key cycles through the available bearing 1 indicator modes (NAV1, GPS1, ADF, or None).

### BRG2

The **BRG2** soft key cycles through the available bearing 2 indicator modes (NAV2, GPS2, ADF, or None). This soft key will only be present if the system is configured for a second GPS or VOR/LOC.

### SYN VIS

The **SYN VIS** soft key is available if Synthetic Vision Technology™ is installed. It enables Synthetic Vision and displays the associated soft keys.

### *SYN TERR*

The **SYN TERR** soft key is available if Synthetic Vision Technology™ is installed and enables synthetic terrain depiction.

### *HRZN HDG*

The **HRZN HDG** soft key is available if Synthetic Vision Technology™ is installed. Pressing this key enables horizon heading marks and digits.

### *APTSIGNS*

The **APTSIGNS** soft key is available if Synthetic Vision Technology™ is installed and enables airport sign posts for airports. Only heliports in the current flight plan are shown.

### *BACK*

The **BACK** soft key returns to the pages default soft key options.

## 2.2 Airspeed Indicator

The Airspeed Indicator displays airspeed on a rolling number gauge using a moving tape. The numeric labels and major tick marks on the moving tape are marked at intervals of 10 units, while minor tick marks on the moving tape are indicated at intervals of five units. Speed indication starts at 20 knots, regardless of the displayed units.

**NOTE:** *Airspeed units (KTS, MPH, KPH) are configured to match the approved units for the installation.*

The Airspeed Indicator provides Indicated Airspeed, True Airspeed, and Ground Speed. The Airspeed Trend Indicator shows what the airspeed will be in six seconds, if the current acceleration is maintained. The actual airspeed is displayed inside the black pointer.

The Airspeed Trend Vector is a vertical, pink/magenta line, extending up or down on the airspeed scale, shown to the right of the color-coded speed range strip. The end of the trend vector corresponds to the predicted airspeed in six seconds if the current acceleration is maintained. If the trend vector crosses into the overspeed range, the text of the actual airspeed readout changes to yellow. The trend vector is absent if the speed remains constant or if any data needed to calculate airspeed is not available due to a system failure.

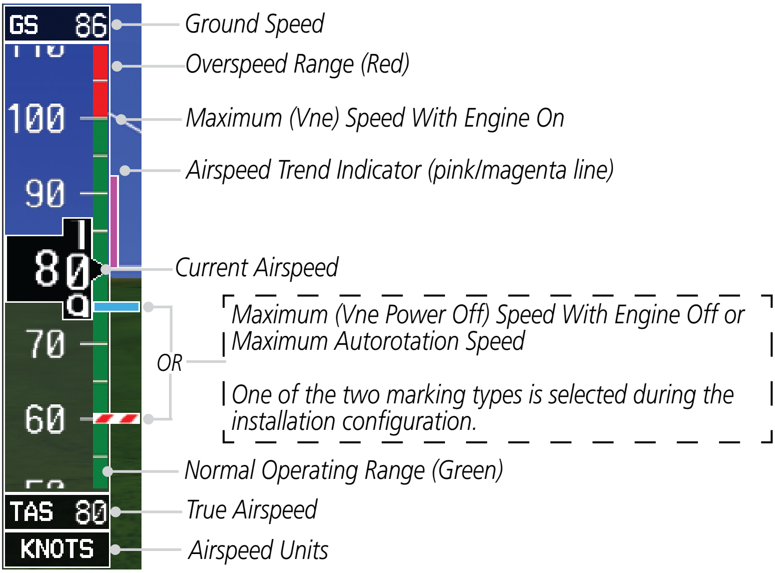

GS 86
100
90
80
70
60
TAS 80
KNOTS
Ground Speed
Overspeed Range (Red)
Maximum (Vne) Speed With Engine On
Airspeed Trend Indicator (pink/magenta line)
Current Airspeed
OR
Maximum (Vne Power Off) Speed With Engine Off or Maximum Autorotation Speed
One of the two marking types is selected during the installation configuration.
Normal Operating Range (Green)
True Airspeed
Airspeed Units

Figure 2-5 Airspeed Tape

## 2.2.1 Markings

A color-coded speed range strip is located on the moving tape. The colors are configured to match the approved markings for the installation. See the AFM/POH.

***NOTE**: The actual colors and patterns of the airspeed tape may vary by installation. See your AFM/POH for more details.*

## 2.2.2 Reference Speeds

V-speeds (Glide and $V_Y$) default values are set during the installation process, but can be changed and turned on/off from the System Setup page on the first page of the Aux page group. When active (on), the V-speeds are displayed at their respective locations to the right of the airspeed scale. The values you set are retained when the unit power is cycled.

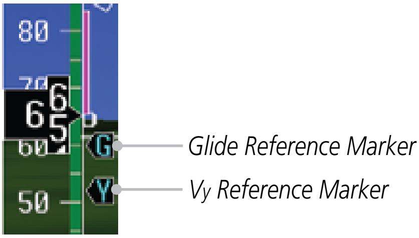
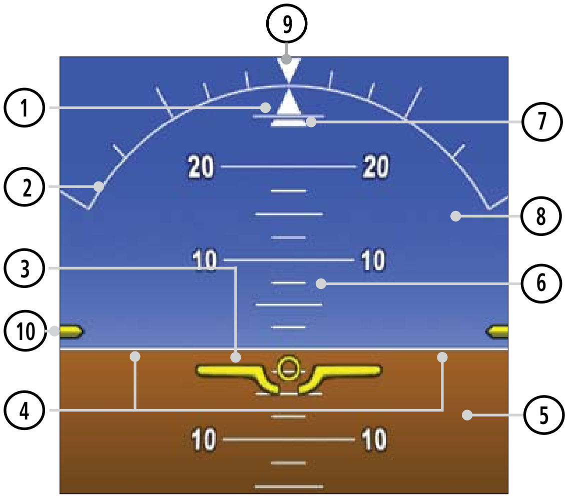


**Figure 2-6 Reference Speeds**

## 2.3 Attitude Indicator

Attitude information is displayed over a virtual blue sky and brown ground with a white horizon line. The Attitude Indicator displays pitch, roll, and slip/skid information.



① *Roll Pointer*
② *Roll Scale*
③ *Aircraft Symbol*
④ *Horizon Line*
⑤ *Land Representation*
⑥ *Pitch Scale*
⑦ *Trim Ball Indicator*
⑧ *Sky Representation*
⑨ *Roll Scale Zero*
⑩ *Pitch Reference Bars*

**Figure 2-7 Attitude Indicator**

The horizon line is part of the pitch scale. Above and below the horizon line, major pitch marks and numeric labels are shown for every 10°, up to 80°. Minor pitch marks are shown for intervening 5° increments, up to 25° below and 45° above the horizon line. Between 20° below to 20° above the horizon line, minor pitch marks occur every 2.5°.

Angle of bank is indicated by the position of the pointer on the roll scale. Major tick marks are 30° and 60° and minor tick marks are 10°, 20°, and 45° are shown to the left and right of the zero.

The Trim Ball Indicator is the bar beneath the roll pointer. The indicator moves with the roll pointer and moves laterally away from the pointer to indicate lateral acceleration. Trim is indicated by the location of the bar relative to the pointer. One bar displacement (as shown below) is equal to one ball displacement on a traditional Trim Ball Indicator.

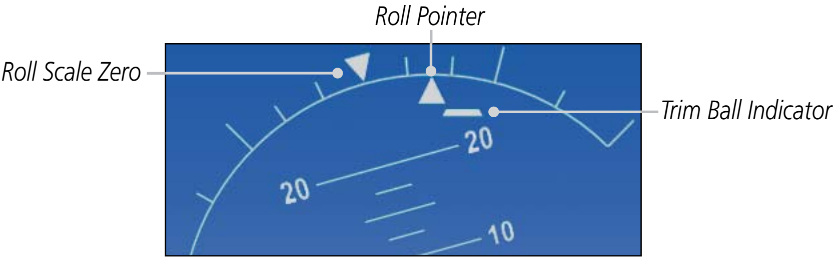

Roll Pointer
Roll Scale Zero
Trim Ball Indicator
20
20
10

Figure 2-8 Trim Indication

Ground/Sky Pointer mode is configured during installation and can not be changed by the pilot.

In an aircraft with an Attitude Indicator that has a Ground Pointer, the pointer above the Roll Scale shifts with the roll or bank angle of the aircraft to keep the Roll Scale Zero Pointer pointing towards the ground.

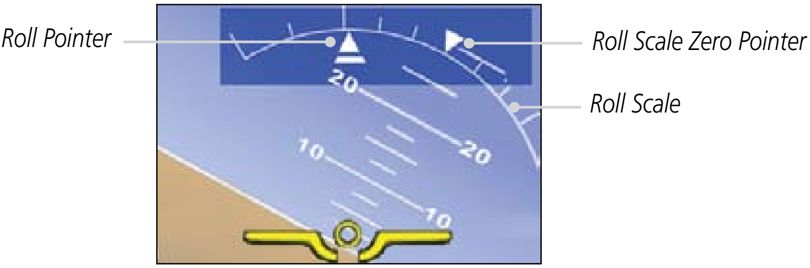

Roll Pointer
Roll Scale Zero Pointer
Roll Scale
20
10
20
10

Figure 2-9 Attitude Indicator with a Ground Pointer configuration in a left turn

In an aircraft with an Attitude Indicator that has a Sky Pointer, the pointer below the roll scale shifts with the roll or bank angle of the aircraft to keep the Roll Pointer pointing towards the sky.

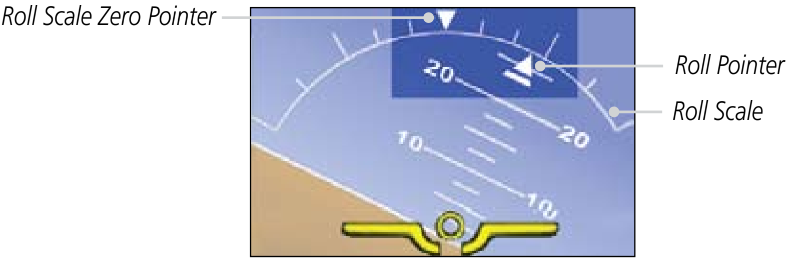

Roll Scale Zero Pointer
Roll Pointer
Roll Scale
20
10
20
10

Figure 2-10 Attitude Indicator with a Sky Pointer configuration in a left turn

## 2.3.1 Extreme Attitude

Extreme attitude is defined as a roll greater than 65° left or right, 30° pitch up, or 20° pitch down. Red chevrons are displayed at greater than 50° pitch up and 30° pitch down. The PFD will “declutter” when the aircraft enters an extreme attitude. Only the primary functions will be displayed in these situations.

The following information is removed from the PFD (and corresponding soft keys are disabled) when the aircraft is in an unusual attitude:

- PFD Knob Mode Annunciations
- Ground Speed, True Airspeed, and Airspeed Units
- Selected Altitude, Barometer Settings, and Selected Vertical Speed
- Vertical Course Deviation Indicator
- Traffic and Terrain Annunciations

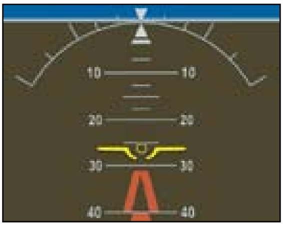

10
10
20
20
30
30
40
40

Figure 2-11 Extreme Pitch Indication

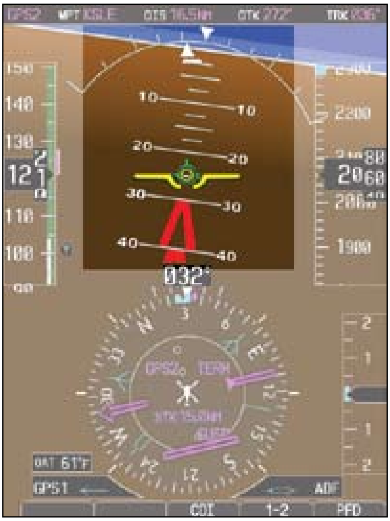

GPS2
WPT
DIS
DTK
TRK
150
140
130
110
100
10
20
30
40
2200
1900
032°
N
3
6
E
12
15
S
21
24
W
33
OAT 61°F
GPS1
ADF
CDI
1-2
PFD

Figure 2-12 Extreme Pitch Indication Nose Down

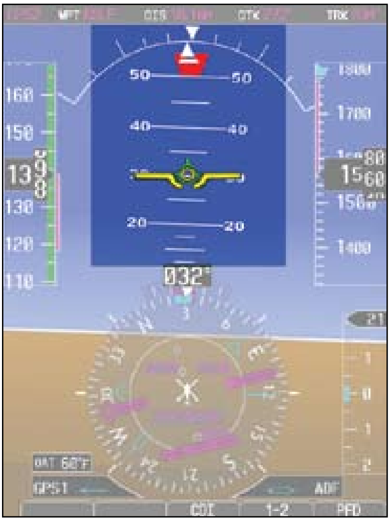

GPS2
WPT
DIS
DTK
TRK
160
150
130
120
110
50
40
20
1800
1700
1400
032°
N
3
6
E
12
15
S
21
24
W
33
OAT 62°F
GPS1
ADF
CDI
1-2
PFD

Figure 2-13 Extreme Pitch Indication Nose Up

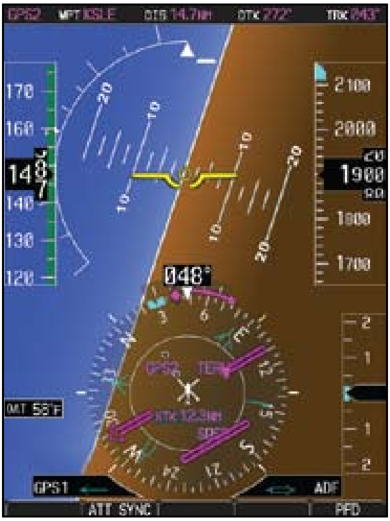

GPS2
WPT KSLE
DIS 14.7NM
DTK 272°
TRK 243°
170
160
148
140
130
120
2100
2000
1900
1800
1700
048°
OAT 58°F
GPS1
ADF
ATT SYNC
PFD

Figure 2-14 Extreme Roll Indication with Display Declutter

## 2.4 Altimeter

The altimeter displays the current altitude, altitude trend, altitude bug setting, altitude bug, and the current BARO setting.

The Altitude Trend Vector is a vertical, magenta line, extending up or down on the left side of the Altitude scale. The end of the trend vector corresponds to the predicted altitude in six seconds if the current vertical speed is maintained.

The Altitude Bug is displayed at the selected Altitude Bug setting. A portion of the Altitude Bug will be displayed at the top or the bottom of the altitude tape if the selected Altitude Bug is off of the tape.

The brown ground awareness band will have white stripes added when the aircraft is within 250 feet of the ground.

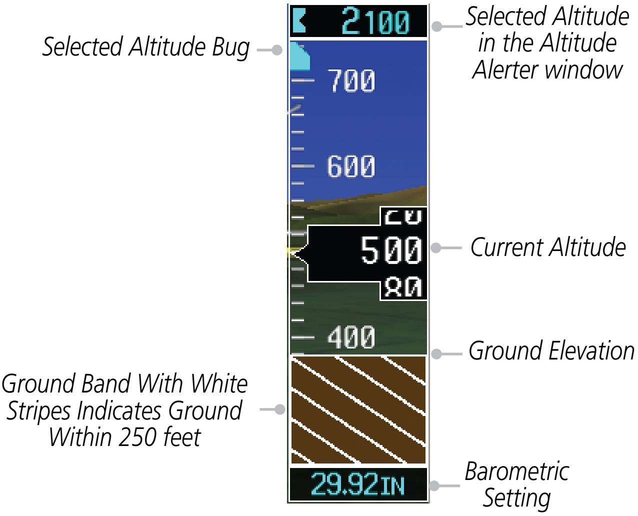

Selected Altitude Bug
2100
Selected Altitude in the Altitude Alerter window
700
600
500
Current Altitude
400
Ground Elevation
Ground Band With White Stripes Indicates Ground Within 250 feet
29.92IN
Barometric Setting

**Figure 2-15  Ground Band Showing Ground Is Within 250 Feet**

### 2.4.1 Setting the Altitude Bug and Alerter

1) Press the **ALT** key to activate Altitude mode.

2) Turn the **PFD** knob to move the Altitude Bug to a desired altitude.

OR

3) Press the center of the **PFD** knob to set the selected altitude to the current altitude.

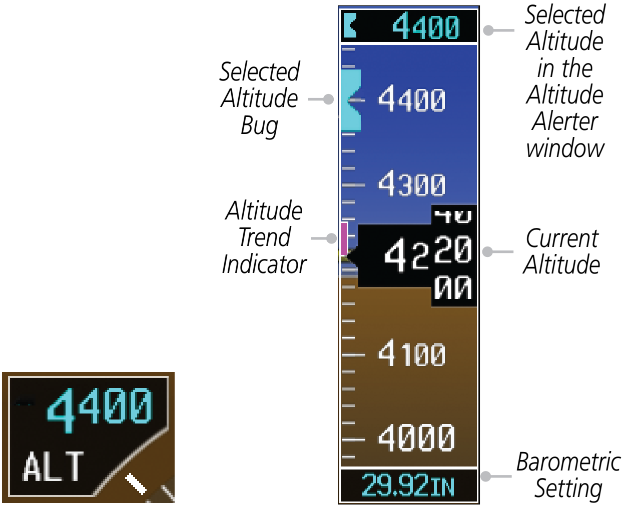

4400
ALT
Selected Altitude Bug
Altitude Trend Indicator
4400
4400
4300
4220
4100
4000
29.92IN
Selected Altitude in the Altitude Alerter window
Current Altitude
Barometric Setting

Figure 2-16 Altimeter

## 2.4.2 Altitude Alerting

The Altitude Alerting function provides the pilot with visual and aural alerts (if interfaced to an audio panel) when approaching the Selected Altitude. Whenever the Selected Altitude is changed, the Altitude Alerter is reset. The following occur when approaching the Selected Altitude:

- Upon passing through 1000 feet of the Selected Altitude, the Selected Altitude (shown above the Altimeter) changes to black text on a light blue background, and flashes for five seconds. An audio alert may be generated, if configured.
- When the aircraft passes within 200 feet of the Selected Altitude, the Selected Altitude changes to light blue text on a black background and flashes for five seconds and an aural tone may be generated, if configured.
- After reaching the Selected Altitude, if the pilot flies outside the deviation band (beyond ±200 feet of the Selected Altitude), the Selected Altitude changes to yellow text on a black background, flashes for five seconds, and an aural tone is generated.

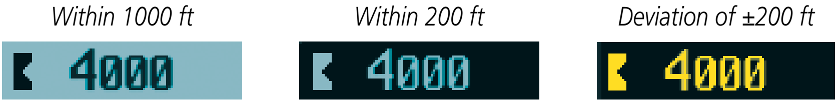

*Within 1000 ft* *Within 200 ft* *Deviation of ±200 ft*

**Figure 2-17 Altitude Alerting Visual Annunciations**

***NOTE:** The aural tone when approaching the selected altitude may be configured at installation for either 200 feet or 1000 feet. The tone when deviating from the selected altitude always occurs at 200 feet.*

## 2.4.3 Changing Barometric Setting

The Barometric Setting affects the altitude values shown on the PFD. Barometric pressure units may be displayed as either inches (in) or hectopascals (hpa). See *System Display Units* in Section 3 for more detail.

1) Press the **BARO** key to activate Baro mode.
2) Turn the **PFD** knob to increase or decrease the altimeter setting. OR

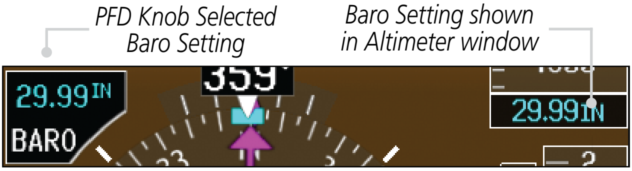

*PFD Knob Selected Baro Setting*
*Baro Setting shown in Altimeter window*

**Figure 2-18 Barometric Setting**

3) Press the **PFD** knob while in Baro mode to toggle between Standard Pressure (29.92 in) and the currently selected barometric setting.

## 2.4.4 Minimum Descent Altitude/Decision Height Alerting

For altitude awareness, a barometric Minimum Descent Altitude (MDA) or Decision Height (DH) alert can be displayed on the PFD. The values are set in the Active Flight Plan page or from the Charts page menu. When active, the minimum descent altitude setting is displayed in the minimums window at the bottom left of the Altitude Tape when you are within 2500 feet of the selected minimum altitude.

***NOTE:*** *The Altitude Minimums Alerting Bug appears parked at the bottom of the altitude tape as soon as a value is set in the minimums alerter. The bug will unpark and start to move up the tape as soon as the altitude is within the range of the tape. The bug is reset when power is cycled.*

The following visual annunciations occur when approaching the MDA/DH:

- When the aircraft altitude descends to within 2500 feet of the selected altitude setting, the Minimums box appears with the altitude value in cyan text.
- When the aircraft is within 100 feet of the selected altitude setting, the bug and text turn white.
- Once the aircraft reaches the selected altitude minimums setting, the bug and the altitude text turn yellow and the aural alert "Minimums, minimums," is heard one time. The text remains in yellow until the aircraft altitude is more than 50 feet above the set altitude minimum value.

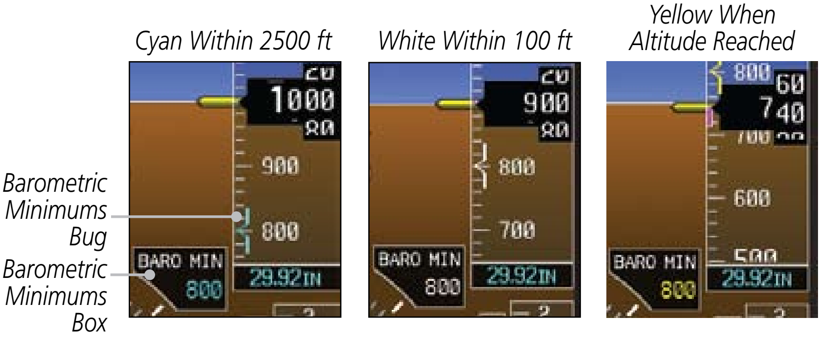
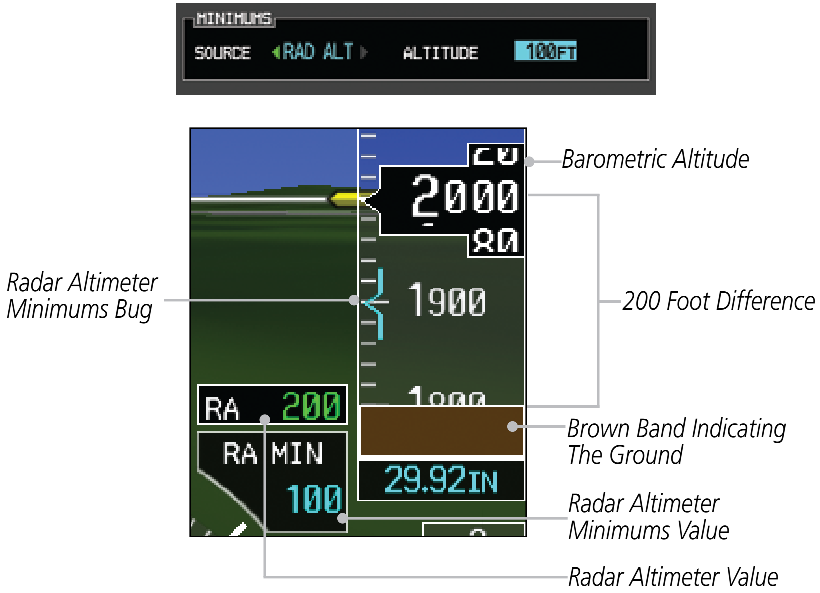

*Cyan Within 2500 ft* *White Within 100 ft* *Yellow When Altitude Reached*

**Figure 2-19 Barometric MDA/DH Alerting Visual Annunciations**

Alerting is inhibited while the aircraft is on the ground and until the aircraft reaches 150 feet above the selected Minimum Altitude. Normally the altitude alerter only allows selection of altitudes in 100 foot increments. When a value other than 100 feet is set for Baro Mins, it becomes a selectable value in the altitude alerter.

In dual installations, the minimums alerting altitude value may be set from either GDU 620 and will be synchronized on both units.

Details on using a Radar Altimeter as the source for setting minimums is in Section 2 - PFD - Radar Altimeter.


MINIMUMS

SOURCE ◂RAD ALT▸ ALTITUDE 100FT

Barometric Altitude
2000
200 Foot Difference
1900
Radar Altimeter Minimums Bug
RA 200
RA MIN 100
Brown Band Indicating The Ground
29.92IN
Radar Altimeter Minimums Value
Radar Altimeter Value

**Figure 2-20 Minimums Values with a Radar Altimeter**

Setting the Altitude Minimums Bug is performed on either the FPL - Active Flight Plan page or the FPL - Charts page.

For details for setting the Altitude Minimums Bug on the Active Flight Plan page, refer to Section 3 - MFD - Flight Plan Pages.

For details for setting the Altitude Minimums Bug on the Charts page, refer to Section 5 - Additional Features - Charts Menu Selections.

***NOTE:** If you highlight the minimums Altitude field and hit the CLR key, it will turn the minimums alerting functionality off.*

## 2.5 Vertical Speed (V/S) Indicator

Vertical speed data is presented on the bottom right of the PFD. A Vertical Speed bug and a bug setting are also available.

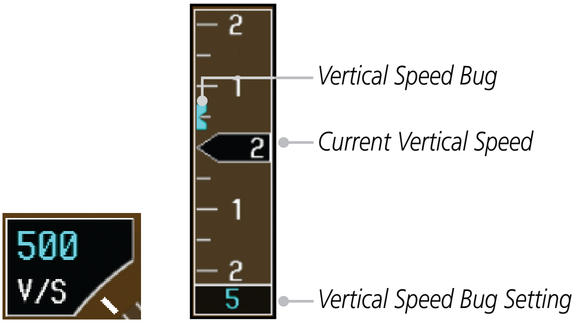


Figure 2-21 Vertical Speed (V/S) Tape and Window

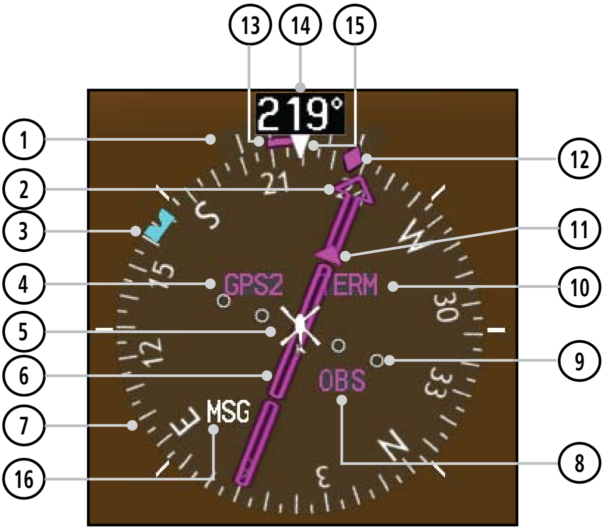
The Vertical Speed Indicator displays the aircraft vertical speed using a non-moving tape. The tape can be scaled at ±2000, ±3000, or ±4000 fpm as set by the installer. Major gradations are every 1000 fpm and minor gradations every 500 fpm. The current vertical speed is displayed in the pointer along the tape. Digits appear in the pointer when the climb or descent rate is greater than 100 fpm. If the rate of ascent/descent exceeds the vertical speed displayed on the tape, the pointer appears at the corresponding edge of the tape and the rate appears inside the pointer.

### Setting the Vertical Speed Indicator Bug

1) Press the **V/S** key to activate Vertical Speed mode.
2) Turn the **PFD** knob to change the Vertical Speed Bug.
3) Press the center of the **PFD** knob to set the Vertical Speed value to the current vertical speed.

## 2.6 Horizontal Situation Indicator

The Horizontal Situation Indicator (HSI) displays a rotating compass card in a heading-up orientation. Letters indicate the cardinal points and numeric labels occur every 30º. Major tick marks are at 10º intervals and minor tick marks at 5º intervals. A digital reading of the current heading appears on top of the HSI, and the current ground track is represented on the HSI by a magenta diamond. The HSI also presents turn rate, course deviation, bearing, and navigation source information. The “MSG” annunciation will be shown in the HSI when an unacknowledged message is present on the selected navigator. When the message is acknowledged, the “MSG” annunciation will clear.



① *Turn Rate Indicator*
② *Course Pointer*
③ *Heading Bug*
④ *Navigation Source*
⑤ *Aircraft Symbol*
⑥ *Course Deviation Indicator (CDI)*
⑦ *Rotating Compass Card*
⑧ *OBS Mode Active*
⑨ *Lateral Deviation Scale*
⑩ *GPS Level of Service*
⑪ *To/From Indicator*
⑫ *Current Track Indicator*
⑬ *Turn Rate/Heading Trend Vector*
⑭ *Current Heading*
⑮ *Lubber Line*
⑯ *MSG (Message) on Navigator*

**Figure 2-22 Horizontal Situation Indicator (HSI)**

The 360° HSI contains a Course Deviation Indicator (CDI), with a Course Pointer, To/From Indicator, and a sliding deviation bar and scale. The course pointer is a single line arrow (GPS1, VOR1, and LOC1) or a double line arrow (GPS2, VOR2, and LOC2) which points in the direction of the set course. "LOC" will automatically be displayed if a localizer frequency is tuned. The To/From arrow rotates with the course pointer and is displayed when the active NAVAID is received.

## 2.6.1 Setting the Heading Bug

The Selected Heading is shown to the upper left of the HSI for 10 seconds after being adjusted. The light blue bug on the compass rose corresponds to the Selected Heading.

***NOTE:*** *The current heading will have a "T" to the right of the heading value when the Nav Angle is set to True in the System Setup page of the Aux page group.*

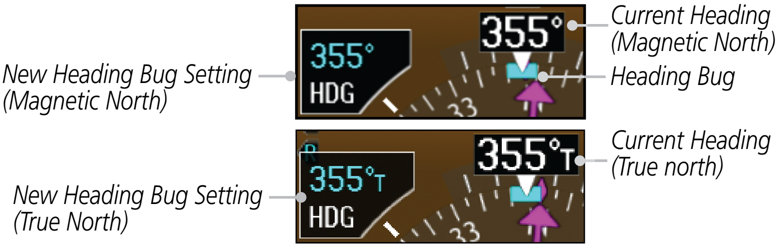

Current Heading (Magnetic North)
Heading Bug
New Heading Bug Setting (Magnetic North)
355°
355°
HDG
33
Current Heading (True north)
New Heading Bug Setting (True North)
355°T
355°T
HDG
33

**Figure 2-23 Heading Bug Setting**

1) Press the **HDG** key to activate HDG mode.

2) Turn the **PFD** knob to change the Heading Bug.

OR

3) Press the **PFD** knob in HDG mode to set the Heading Bug to the current heading.

### 2.6.2 Turn Rate Indicator

The Turn Rate Indicator is located directly above the rotating compass card. Tick marks to the left and right of the lubber line denote half-standard and standard turn rates. A magenta Turn Rate Trend Vector shows the current turn rate. The end of the trend vector gives the heading predicted in six seconds, based on the present turn rate. A standard-rate turn is shown on the indicator by the trend vector stopping at the standard turn rate tick mark, corresponding to a predicted heading of 18° from the current heading. At rates greater than four deg/sec, an arrowhead appears at the end of the magenta trend vector and the prediction is no longer valid.

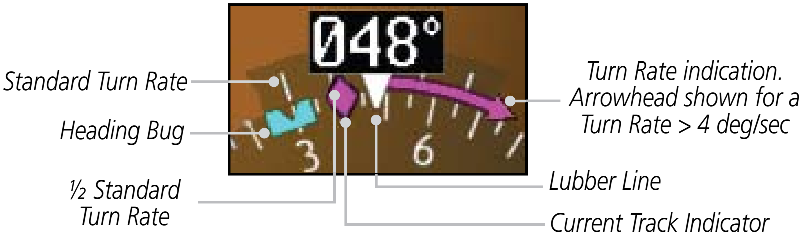

048°
3
6
Standard Turn Rate
Heading Bug
½ Standard Turn Rate
Turn Rate indication. Arrowhead shown for a Turn Rate > 4 deg/sec
Lubber Line
Current Track Indicator

Figure 2-24 Turn Rate Indicator and Trend Vector

## 2.7 Course Deviation Indicator

The Course Deviation Indicator (CDI) moves left or right from the course pointer along a lateral deviation scale to display aircraft position relative to the course. If the course deviation data is not valid, the CDI is not displayed.

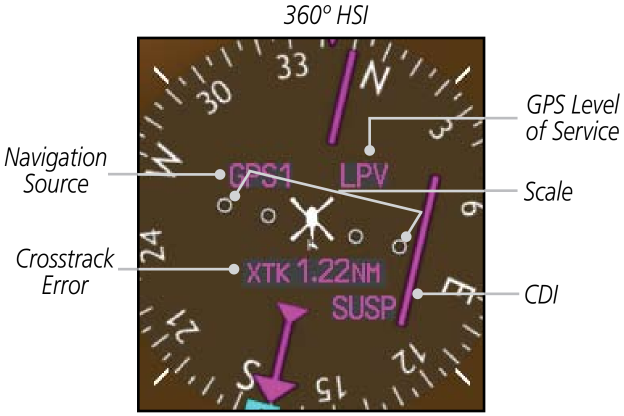

360° HSI
33
N
30
3
W
6
24
E
21
S
15
12
GPS1
LPV
XTK 1.22NM
SUSP
GPS Level of Service
Navigation Source
Scale
Crosstrack Error
CDI

Figure 2-25 Course Deviation Indicator

***NOTE:*** *The ILS Localizer and Glideslope deviation indicators will indicate full-scale deflection for the GNS 480 navigator at the second dot. The GNS 400W/500W series navigators will indicate full-scale deflection at the edge of the display.*

## 2.7.1 Changing CDI Sources

The CDI can display two sources of navigation: GPS or NAV (VOR, and LOC). Color indicates the current navigation source: magenta (for GPS) or green (for VOR and LOC). The full-scale limits for the CDI are defined by a GPS-derived distance when coupled to GPS. When coupled to a VOR or localizer (LOC), the CDI has the same angular limits as a mechanical CDI. If the CDI exceeds the maximum deviation on the scale (two dots) while coupled to GPS, the crosstrack error (XTK) is displayed below the white aircraft symbol.

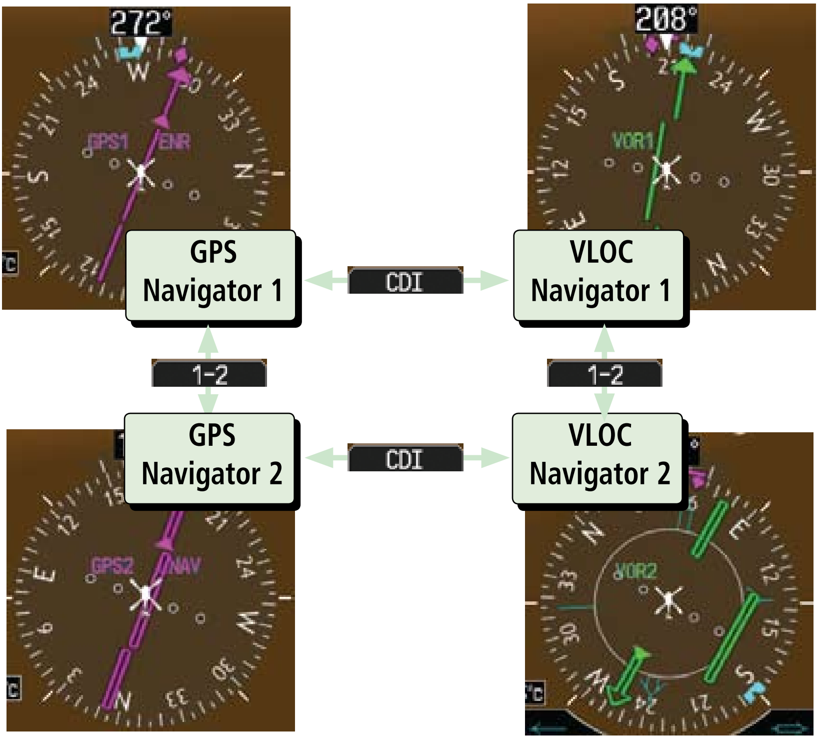


Figure 2-26 CDI Navigation Sources

1) Press the **CDI** soft key to toggle between GPS and VOR/LOC source type.
2) Press **1-2** soft key to toggle between the 1 and 2 navigators of the GPS or VOR/LOC sources.
3) Verify the navigation source by the indication on the HSI and in the upper left corner of the PFD.

---

***NOTE:** The selected navigator is the active navigator for all PFD and MFD operations, except for the supplemental bearing pointers.*

---

## 2.7.2 Changing CDI Course

The Selected Course is shown to the upper left of the HSI for 10 seconds after being adjusted.

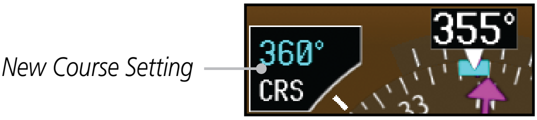


**Figure 2-27 Course Setting**

1) Press the **CRS** key to activate Course mode.
2) Turn the **PFD** knob to change the Course values.

   OR
3) Press the **PFD** knob to set a Course that will center the CDI to the VOR station or waypoint if in GPS OBS mode.

## 2.7.3 Vertical Deviation Indicator (VDI)

The Vertical Deviation (Glideslope) Indicator (VDI) appears to the left of the VSI whenever an ILS frequency is tuned in the active NAV field. A green diamond acts as the VDI Indicator, like a glideslope needle on a conventional indicator. If a localizer frequency is tuned and there is no glideslope signal, "NO GS" is annunciated. The glideslope on an ILS approach is only shown if the current heading is within 90° of the selected course. This prevents the glideslope from being displayed during localizer backcourse approaches.

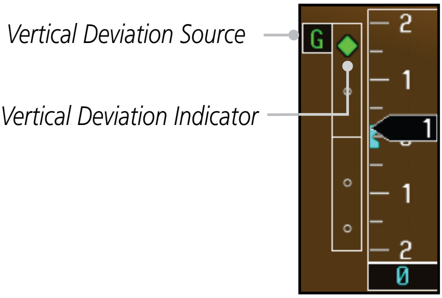


Figure 2-28 Vertical Deviation Indicator (ILS Source)

The vertical deviation is similar to the glideslope for GPS approaches supporting WAAS vertical guidance (LNAV+V, L/VNAV, LPV). When an approach of this type is loaded into the flight plan and GPS is the selected navigation source, the Vertical Deviation Indicator appears as a magenta diamond. If the approach type downgrades to LNAV past the final approach fix (FAF), or the approach only supports LNAV service, "NO GP" is annunciated.

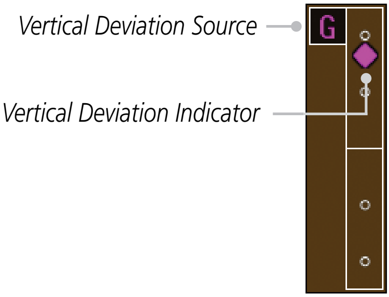


Figure 2-29 Vertical Deviation Indicator (GPS Source)

## 2.7.4 Auto-Slewing

The G500H system is designed to interface with GNS navigator units and also manage up to four different CDI course pointers (GPS1, NAV1, GPS2, NAV2) independently. The G500H will automatically slew the NAV course pointer to the correct final approach course when a ILS, LOC, LOC BC, LDA or SDF approach is active in the GNS navigator and the appropriate frequency is in the active window in the navigator. The G500H will Auto-Slew the HSI course pointer for an ILS, LOC, LOC BC, LDA, or SDF approach when the steps below are completed in the following order:

1) The desired approach is selected and activated in the navigator (this can be verified by the approach waypoints appearing on the GDU620 MFD Nav Map Page or FPL Page).

2) The appropriate frequency is the active frequency in the navigator.

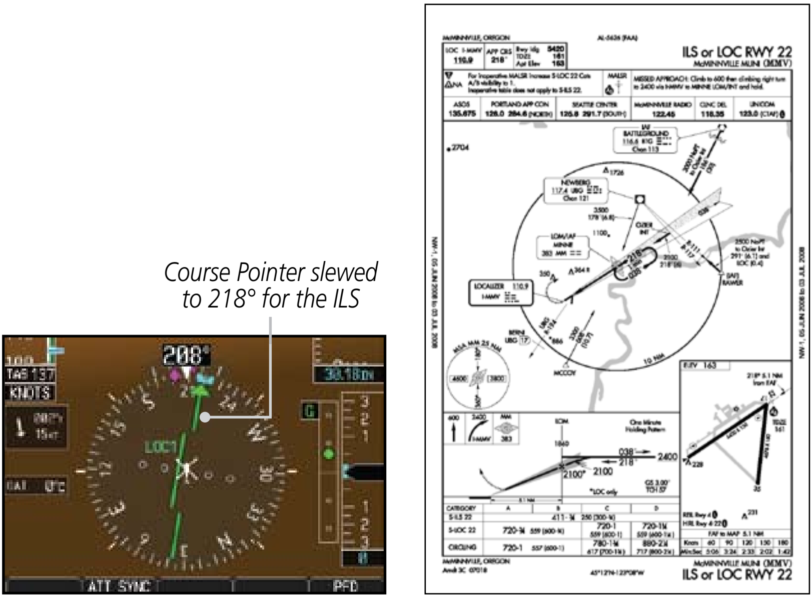
3) The CDI selection on the GDU 620 is changed to NAV course pointer for the active navigator.

***NOTE:*** *If the NAV course pointer is displayed for the active navigator when the approach is activated and the localizer frequency is tuned, the pilot will need to switch to another CDI source and then back to NAV for the course pointer to Auto-Slew.*

*For example, if NAV1 is currently selected, the pilot must:*
*press the CDI soft key twice: NAV1>GPS1>NAV1*
*OR*
*press the 1-2 soft key twice: NAV1>NAV2>NAV1*

***NOTE:*** *For LOC BC approaches, the course pointer will slew 180 degrees from the inbound course.*

Example of activating Auto-Slewing in the G500H:



*Course Pointer slewed to 218° for the ILS*

**Figure 2-30  Auto-Slewing HSI with ILS Loaded and Shown with the Corresponding Approach Plate**

1) The aircraft is flying vectors to final on an active ILS approach, with the appropriate approach in the GNS navigator.

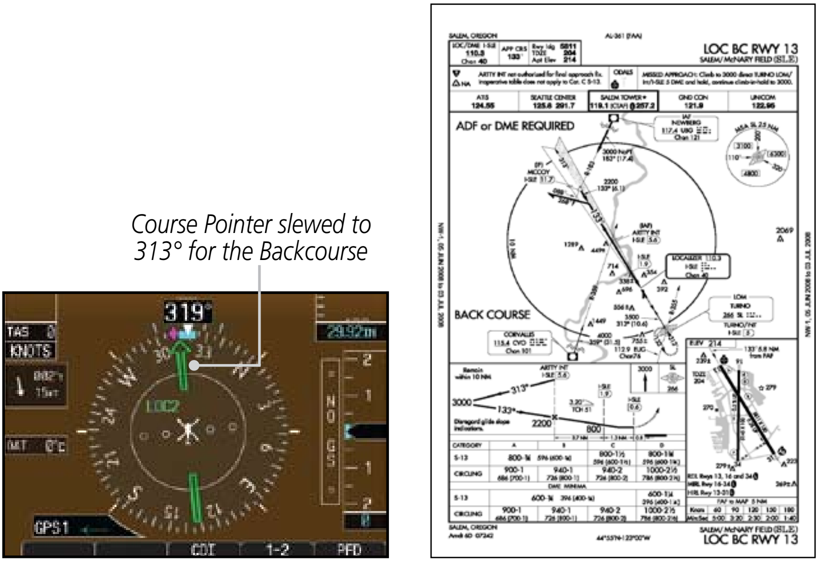
2) The appropriate ILS frequency must be activate in the navigator.

3) Verify that the waypoints for the approach are displayed on the Nav Map Page or the FPL Page of the MFD.

4) Upon approaching the final course, select LOC on the HSI.

***NOTE:** If auto CDI switching is active on the GNS unit, the GNS will force the GNS/GDU 620 to NAV when the aircraft is close to the LOC course.*

5) The CDI and course pointer will change from magenta to green and the pointer will move, or slew, to the final approach course (or 180° from the final approach course for LOC BC approaches).



*Course Pointer slewed to 313° for the Backcourse*

319°
TAS
KNOTS
MET 0°C
LOC2
GPS1
29.92IN
NO GS
CDI
1-2
PFD
ADF or DME REQUIRED
BACK COURSE
LOC BC RWY 13
SALEM/McNARY FIELD (SLE)
SALEM, OREGON

**Figure 2-31 Auto-Slewing HSI with Localizer Backcourse Loaded and Shown with the Corresponding Approach Plate**

# 2.8 Supplemental Flight Data

## 2.8.1 Bearing Pointers

Two Bearing Pointers can be displayed on the HSI for NAV and GPS sources. The pointers are light blue and are single- (BRG1) or double-lined (BRG2); an icon is shown in the respective information window to indicate the pointer type. The system must be configured for a second navigation source to show the BRG2 selection.

When a Bearing Pointer is displayed, its associated information window is also displayed.

The Bearing Information windows are displayed to the lower sides of the HSI and show:

- Bearing source (GPS, NAV, or ADF)
- Pointer icon (BRG1 = single line, BRG2 = double line)

The Bearing Pointer is removed from the HSI if:

- The NAV radio is not receiving the tuned VOR station
- The NAV radio is tuned to a Localizer frequency

- GPS is the bearing source and an active waypoint is not selected
- ADF is selected and a signal is not received (if you have an ADF that supports a valid flag then the bearing pointer will be removed. If your ADF system does not include a valid flag then the bearing pointer will still be displayed, regardless of ADF signal validity.)

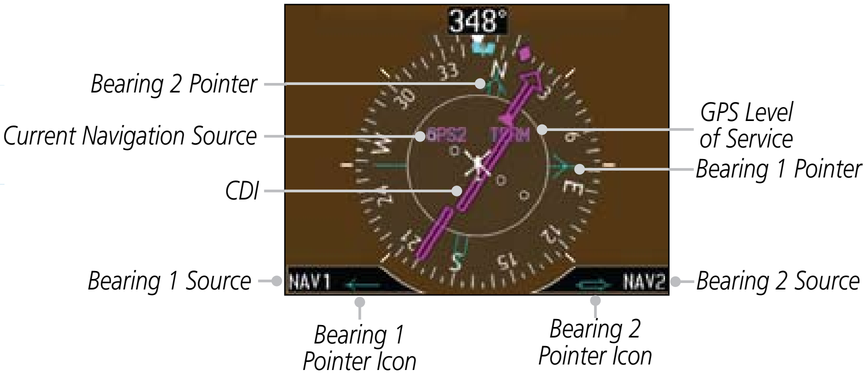

348°
Bearing 2 Pointer
Current Navigation Source
CDI
Bearing 1 Source
GPS Level of Service
Bearing 1 Pointer
Bearing 2 Source
Bearing 1 Pointer Icon
Bearing 2 Pointer Icon
GPS2
TERM
NAV1
NAV2
33
30
W
24
21
S
15
12
E
N

**Figure 2-32 HSI with Bearing Information**

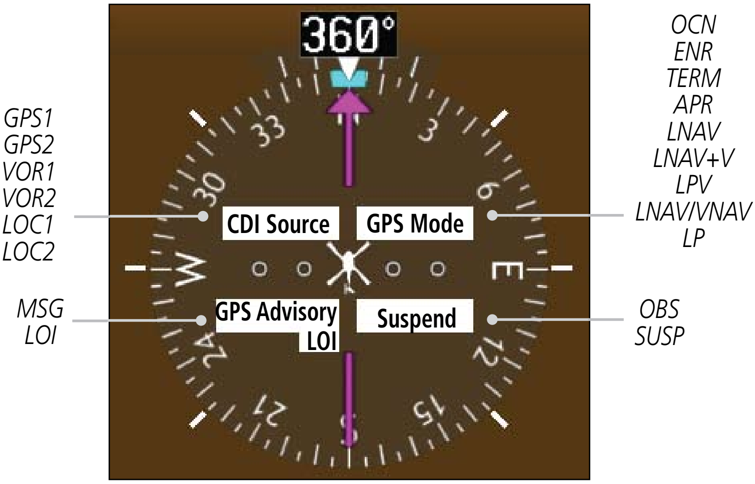

360°
GPS1
GPS2
VOR1
VOR2
LOC1
LOC2
MSG
LOI
CDI Source
GPS Mode
GPS Advisory
LOI
Suspend
OCN
ENR
TERM
APR
LNAV
LNAV+V
LPV
LNAV/VNAV
LP
OBS
SUSP
33
3
30
6
W
E
24
12
21
S
15

**Figure 2-33 PFD HSI Annunciations**

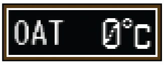
1) Press the **PFD** soft key to display the navigation source keys.

2) Press the **BRG 1** or **BRG 2** soft keys to toggle between the available Nav receivers of the selected source (such as: GPS, NAV, or ADF).

***NOTE:** The Bearing Line for navigation source 1 (BRG1) will be a single line. The Bearing Line for navigation source 2 (BRG2) will be a double line.*

### 2.8.2 Temperature Display

The Outside Air Temperature (OAT) is displayed to the left of the HSI. The OAT can be displayed in °F or °C, which is configured in the Aux System Setup Page. The temperature is derived from the Temperature Probe on the aircraft. The displayed temperature is the Static Air Temperature reported by the Air Data Computer. This temperature value is corrected for ram air heating effects.

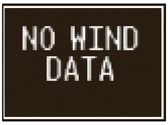


OAT 0°C

Figure 2-34 HSI Outside Air Temperature

### 2.8.3 Wind Vectors

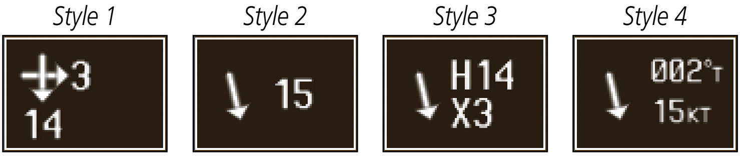
When selected, wind vector information is displayed in a window on the PFD to the left of the HSI. The Wind Vector style is configured in the Aux Mode System Setup page. When the airspeed is less than 20 knots, the Wind Vector window will indicate "No Wind Data."



NO WIND DATA

Figure 2-35 Wind Vector with No Wind Data

Four styles are available as shown below.



*Style 1*

*Style 2*

*Style 3*

*Style 4*

Figure 2-36 Wind Vector Style

Foreword
Sec 1 System
Sec 2 PFD
Sec 3 MFD
Sec 4 Hazard Avoidance
Sec 5 Additional Features
Sec 6 Annun. & Alerts
Sec 7 Symbols
Sec 8 Glossary
Appendix A
Appendix B Index

## 2.9 Attitude (ATT) Sync

The ATT SYNC soft key toggles the miniature aircraft symbol between the "absolute" pitch reference and the horizon line at the time the soft key is pressed. The use of ATT SYNC function moves the miniature aircraft to the horizon line and allows aircraft attitude to be controlled with more precision and less effort. When the ATT SYNC function is active small reference marks are shown on the sides of the attitude indicator that show the absolute pitch reference. The miniature aircraft symbol cannot be synchronized to the horizon line if the pitch attitude is greater than ±8º.

Pressing the **ATT SYNC** soft key will synchronize the aircraft symbol on the PFD to the horizon line. The **ATT SYNC** soft key will not be available for selection until the aircraft is near a level pitch attitude (within ±8º).

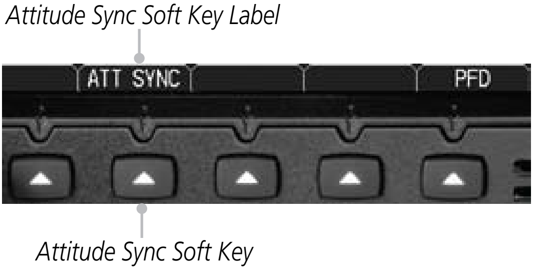


Figure 2-37  Before Attitude Sync Selected

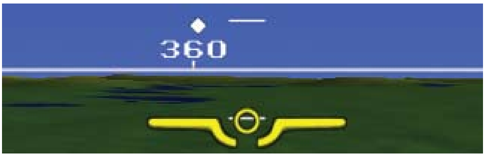


Figure 2-38  Before Attitude Sync Selected

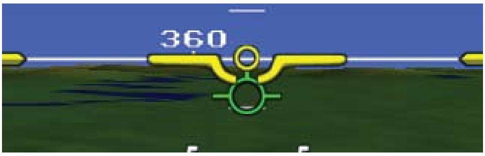


Figure 2-39  After Attitude Sync Selected

## 2.10 Radar Altimeter

When an optional Radar Altimeter is installed, the altitude received from the radar altitude will be displayed on the PFD.

***NOTE:** See the Radar Altimeter documentation for details on the radar altimeter performance and limitations.*

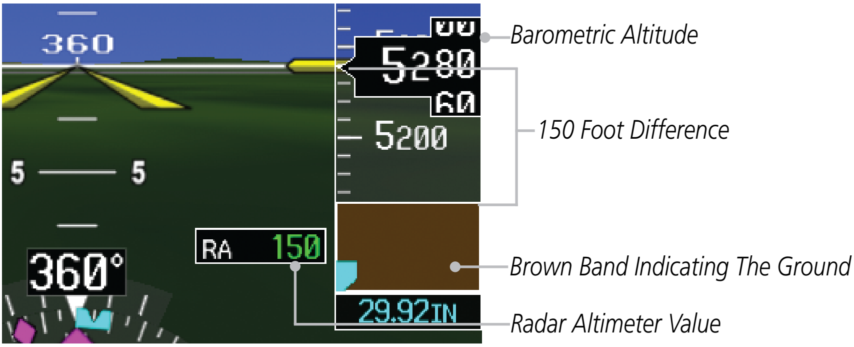

360
5
5
360°
RA 150
5280
60
5200
29.92IN
Barometric Altitude
150 Foot Difference
Brown Band Indicating The Ground
Radar Altimeter Value

**Figure 2-40 Radar Altimeter Display - 150 foot RA Altitude**

When the radar altitude is 0, the brown band will be level with the altitude tape pointer. As the radar altitude increases above 0, the brown band will move down the tape in an amount equal to the current radar altitude.

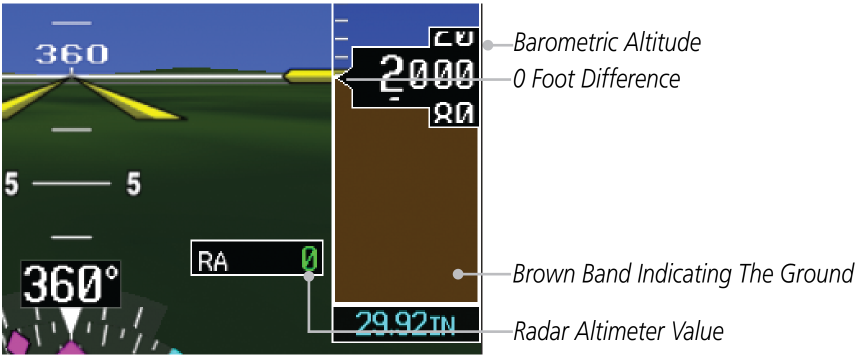

360
5
5
360°
RA 0
2000
80
29.92IN
Barometric Altitude
0 Foot Difference
Brown Band Indicating The Ground
Radar Altimeter Value

**Figure 2-41 Radar Altimeter Display - 0 foot RA Altitude**

The Radar Altimeter self-test process will be annunciated on the PFD above the Radar Altimeter altitude value. The self-test is a wiring test to indicate communication between the GDU and the Radar Altimeter. The self-test will be cancelled after 15 seconds, the Test key is pressed again, or you leave the System Setup page.

***NOTE:** Not all Radar Altimeters have the TEST function.*

1) Turn the large **MFD** knob to Aux mode and then turn the small **MFD** knob to the System Setup page.

2) Press the **RA TEST** key. "RA TEST" will be annunciated above the Radar Altimeter value. The Radar Altimeter value will show a certain number to indicate that communication is taking place between the Radar Altimeter and the GDU. See your Radar Altimeter documentation for the appropriate value.

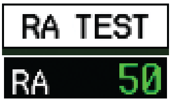


**Figure 2-42 Radar Altimeter Test Annunciation**

3) Press the **RA TEST** key again to stop the self-test.

4) If the unit fails the self-test, the RA value will not match the expected value. The "RA FAIL" annunciation will appear on the PFD when the GDU is not receiving any Radar Altimeter data. "RA FAIL" is not related to the self-test.

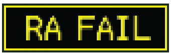


**Figure 2-43 Radar Altimeter Failure Annunciation**

## Radar Altimeter Only Configuration

There is an installer configuration option for the type of minimums alerting that is presented to the pilot. When this option is set by the installer to RA ONLY then the following differences are seen by the pilot:

1) The minimums alerting value is defaulted ON with a setting of 200 feet.

2) BARO MINIMUMS cannot be selected by the pilot, only RAD ALT mins.

3) The callout upon reaching the selected altitude is a unique tone rather than the aural “minimums, minimums” callout.

4) The altitude required to arm the alerting is 50 feet above the selected altitude instead of 150 feet.

5) The display radar altitude will always be green when the aircraft is ON GROUND as indicated by the air ground input.

# 2.11 PFD Display Units

The PFD display units may be set to standard or metric units by the installer. The MFD display units may still be selected by the user in the System Setup page of Aux mode.

*This page intentionally left blank*

# 3 MULTI-FUNCTION DISPLAY (MFD)

The MFD displays a color moving map with navigation information. Moving map information is shown on the two Navigation Map pages and the optional Weather (WX) pages (requires a datalink and subscription). The Navigation Map displays aviation data (e.g., airports, VORs, airways, airspaces), geographic data (e.g., cities, lake, highways, borders), topographic data (map shading indicating elevation), and hazard data (e.g., traffic, terrain, weather). The map options set for Navigation Map page 1 are used as the default settings for the optional Weather (WX) pages. The amount of displayed data can be reduced by pressing the **DCLTR** soft key. The Navigation Map can be oriented four different ways: North Up (NORTH UP), Track Up (TRACK UP), Desired Track Up (DTK UP), or Heading Up (HDG UP).

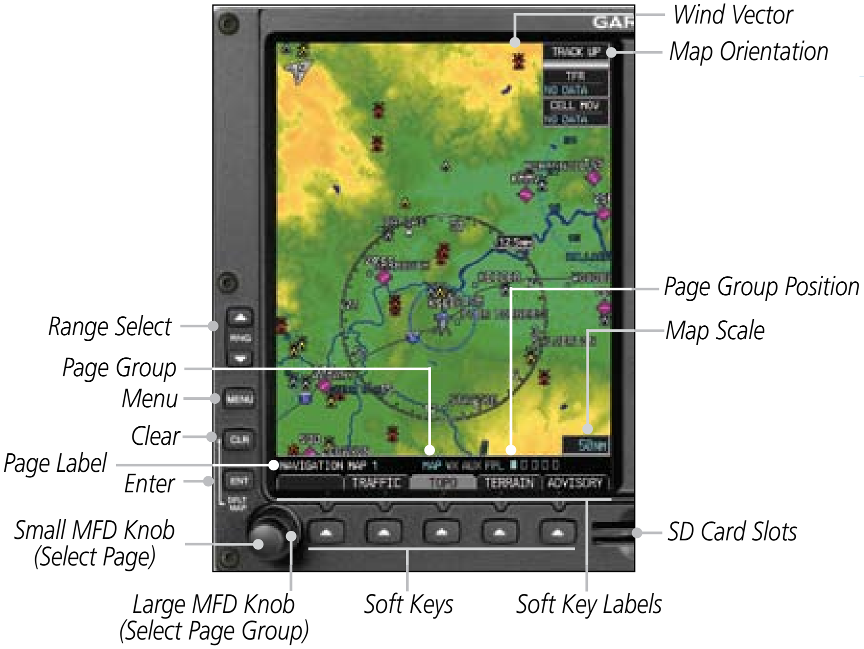

Wind Vector
Map Orientation
Page Group Position
Map Scale
Range Select
Page Group
Menu
Clear
Page Label
Enter
Small MFD Knob (Select Page)
SD Card Slots
Large MFD Knob (Select Page Group)
Soft Keys
Soft Key Labels
TRACK UP
NAVIGATION MAP 1
MAP WX AUX FPL
TRAFFIC
TOPO
TERRAIN
ADVISORY

Figure 3-1  MFD Description

The nose of the aircraft icon is placed on the Navigation Map at the location corresponding to the calculated present position. The aircraft position and the flight plan legs are based on information received from the currently selected GPS navigator. The leg of the active flight plan currently being flown is shown as a magenta line on the navigation map. The other legs are shown in white.

There are 28 different map ranges available, from 500 feet to 2000 NM. The current range is indicated in the lower right corner of the map and represents the top-to-bottom distance covered by the map. To change the map range on any map, press the **RNG** keys on the right side of the bezel.

## 3.1 Functional Display Map

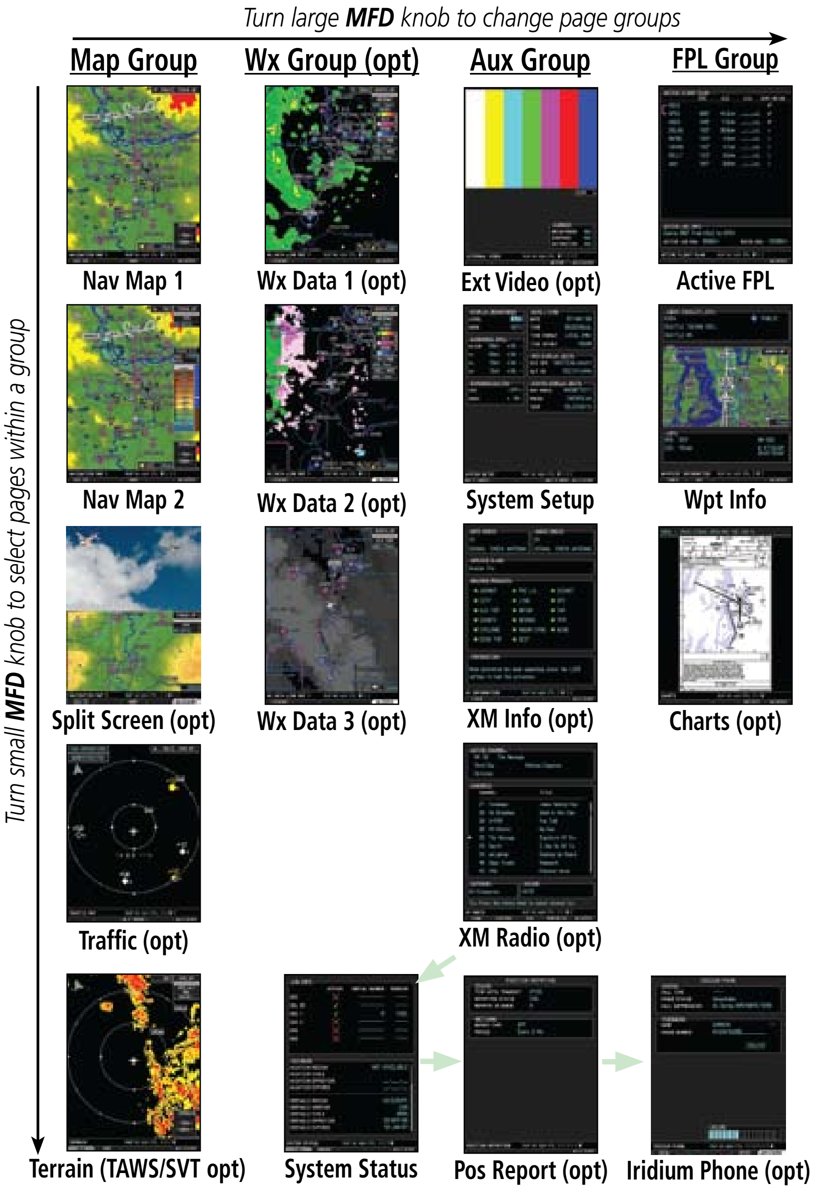

*Turn large **MFD** knob to change page groups*
Map Group
Wx Group (opt)
Aux Group
FPL Group
*Turn small **MFD** knob to select pages within a group*
Nav Map 1
Wx Data 1 (opt)
Ext Video (opt)
Active FPL
Nav Map 2
Wx Data 2 (opt)
System Setup
Wpt Info
Split Screen (opt)
Wx Data 3 (opt)
XM Info (opt)
Charts (opt)
Traffic (opt)
XM Radio (opt)
Terrain (TAWS/SVT opt)
System Status
Pos Report (opt)
Iridium Phone (opt)

Figure 3-2  MFD Page Groups

## 3.2 MFD Soft Key Map

The soft keys available depend on the page displayed and the features available. The soft key "Alerts" is present on the far right position in all MFD displays.

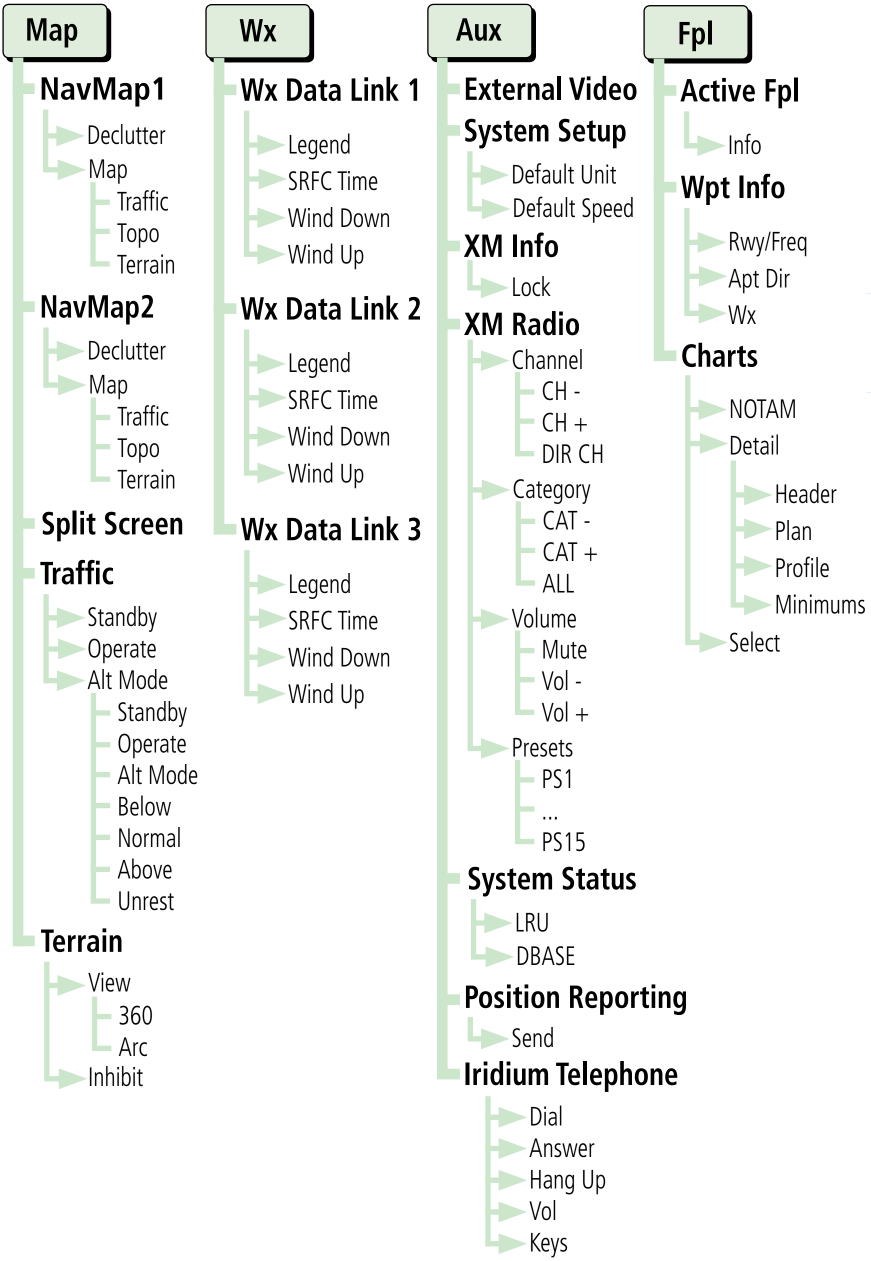

Map
  NavMap1
    Declutter
    Map
      Traffic
      Topo
      Terrain
  NavMap2
    Declutter
    Map
      Traffic
      Topo
      Terrain
  Split Screen
  Traffic
    Standby
    Operate
    Alt Mode
      Standby
      Operate
      Alt Mode
      Below
      Normal
      Above
      Unrest
  Terrain
    View
      360
      Arc
    Inhibit
Wx
  Wx Data Link 1
    Legend
    SRFC Time
    Wind Down
    Wind Up
  Wx Data Link 2
    Legend
    SRFC Time
    Wind Down
    Wind Up
  Wx Data Link 3
    Legend
    SRFC Time
    Wind Down
    Wind Up
Aux
  External Video
  System Setup
    Default Unit
    Default Speed
  XM Info
    Lock
  XM Radio
    Channel
      CH -
      CH +
      DIR CH
    Category
      CAT -
      CAT +
      ALL
    Volume
      Mute
      Vol -
      Vol +
    Presets
      PS1
      ...
      PS15
  System Status
    LRU
    DBASE
  Position Reporting
    Send
  Iridium Telephone
    Dial
    Answer
    Hang Up
    Vol
    Keys
Fpl
  Active Fpl
    Info
  Wpt Info
    Rwy/Freq
    Apt Dir
    Wx
  Charts
    NOTAM
    Detail
      Header
      Plan
      Profile
      Minimums
    Select

**Figure 3-3 MFD Soft Keys**

## 3.3 Navigation Map Pages

Map displays are used extensively in the GDU 620 to provide situational awareness in flight. The two Navigation map pages can display the following information:

- Airports, NAVAIDs, airspace, airways, land data (highways, cities, lakes, rivers, borders, etc.) with names
- Map Pointer information (distance and bearing to pointer, location of pointer, name, and other pertinent information)
- Map range
- Wind direction and speed
- Map orientation
- Icons for enabled map features
- Aircraft icon (representing present position)
- Nav range ring
- Flight plan legs
- Track vector
- Topography scale
- Topography data
- XM NEXRAD Weather
- XM Lightning
- XM Storm Cells

Symbols used on the MFD are detailed in Section 7.

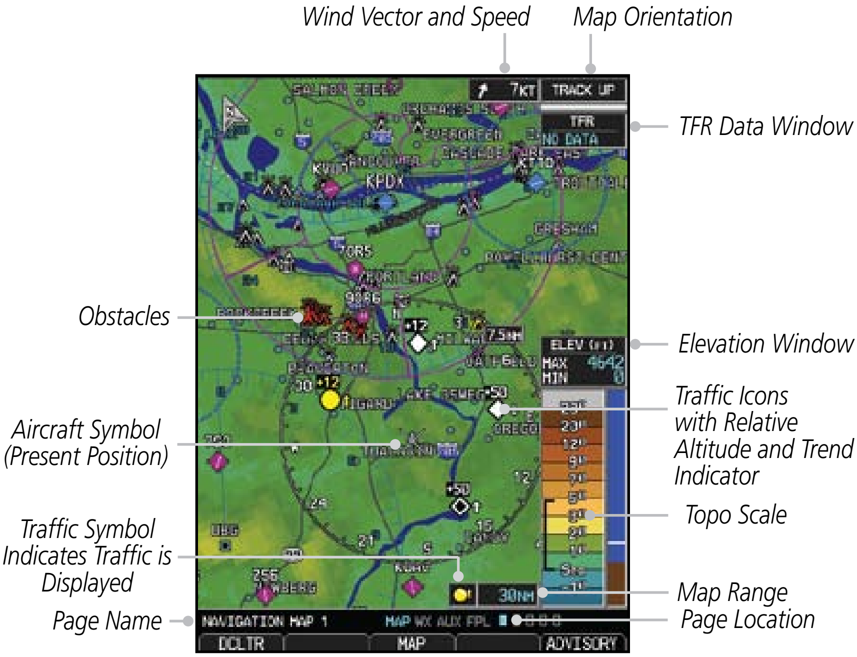

Wind Vector and Speed
Map Orientation
TFR Data Window
Obstacles
Elevation Window
Traffic Icons with Relative Altitude and Trend Indicator
Aircraft Symbol (Present Position)
Topo Scale
Traffic Symbol Indicates Traffic is Displayed
Map Range
Page Name
Page Location
7KT
TRACK UP
TFR
NO DATA
KPDX
GRESHAM
ELEV (FT)
MAX 4642
MIN 0
30NM
NAVIGATION MAP 1
MAP WX AUX FPL
DCLTR
MAP
ADVISORY

**Figure 3-4 MFD Map Description**

## 3.3.1 Default Navigation Map Page

While on any page of the MFD, you may easily return to the first Navigation Map page of the Map group by pressing and holding the **CLR** key to return to the first page (Home Page) of the Map group.

## 3.3.2 Editing Information

1) Press the small **MFD** knob to activate editing.
2) Turn the large **MFD** knob to select desired item.
3) Turn the small **MFD** knob to change the highlighted value.
4) Press **ENT** to accept the displayed value.
5) Press the small **MFD** knob to cancel selection or to end editing.

***NOTE:*** *Page Group and Page are shown at the bottom of the MFD.*

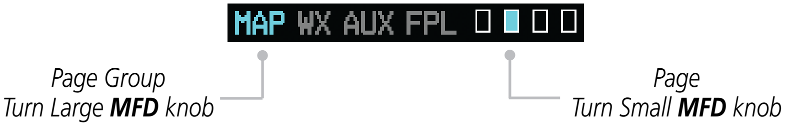


**Figure 3-5 Page Group and Page Locator**

## 3.3.3 Selecting Page Options

1) Change the fields or the setup of a page by pressing the **MENU** key and make the necessary adjustments with the **MFD** knobs.
2) Press **ENT** to accept the displayed value. Press the small **MFD** knob to cancel selection or to end editing.

## 3.3.4 Changing the Navigation Map Range

The Range (RNG) keys on the right side of the bezel are used to change the map display range. Pressing the ▲ **RNG** key will zoom out (increasing the displayed map range) and pressing the ▼ **RNG** key will zoom in (decreasing the displayed map range). The Map Range is shown in the lower right corner of the MFD and represents the top-to-bottom distance covered by the map. The map ranges available are from 500 feet to 2000 NM. When the map range is decreased to a point that exceeds the capability of the GDU 620 to accurately represent the map, a magnifying glass icon is shown to the left of the map range.

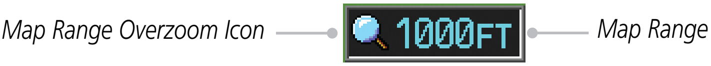


Figure 3-6  Map Range

## 3.3.5 Decluttering Map Pages

The Map Declutter feature allows the pilot to progressively step through four levels of decluttering to remove map information. The declutter level is displayed in the **DCLTR** soft key.

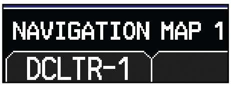


Figure 3-7  Map Declutter Soft Key

1) There are four levels of decluttering. DCLTR (0) shows the most detail. DCLTR-3 removes the most detail.

2) While viewing one of the Navigation Map pages, press the **DCLTR** soft key. Each successive press of the **DCLTR** soft key will toggle through the declutter levels. Features marked with a "•" are shown at the indicated Declutter Level.

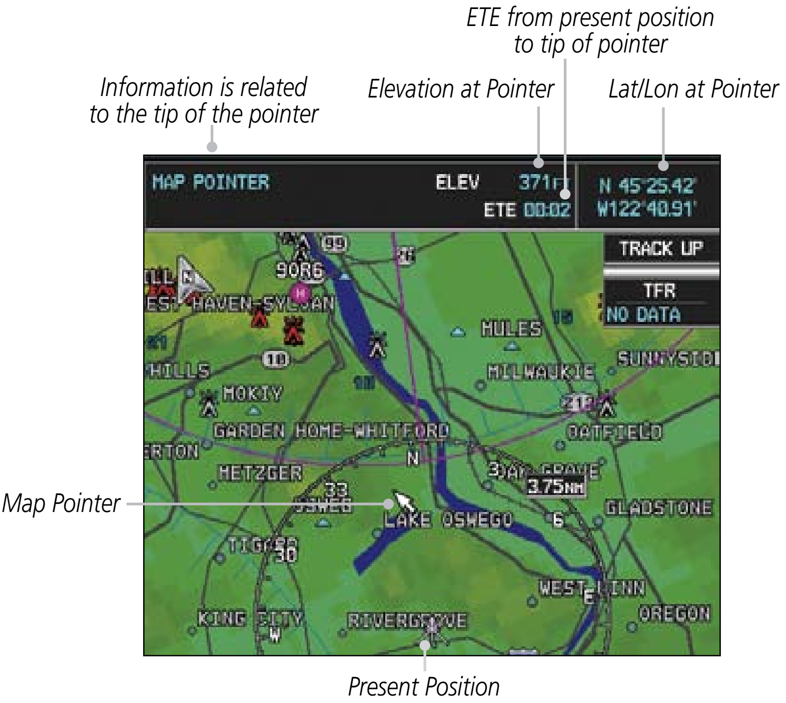
***NOTE:** Traffic is automatically decluttered from Nav Map pages when the map scale is above 150 NM.*

| Feature | 0 | 1 | 2 | 3 | Feature | 0 | 1 | 2 | 3 |
|---|---|---|---|---|---|---|---|---|---|
| Airways | • | | | | Warning Areas | • | • | | |
| River/Lake Names | • | | | | Tower | • | • | | |
| Land/Country Text | • | | | | TRSA | • | • | | |
| Large City | • | | | | ADIZ | • | • | | |
| Medium City | • | | | | Alert Areas | • | • | | |
| Small City | • | | | | Caution Areas | • | • | | |
| Small Town | • | | | | Danger Areas | • | • | | |
| Freeways | • | | | | Heliports | • | • | • | |
| Highways | • | | | | Large Airports | • | • | • | |
| Roads | • | | | | Medium Airports | • | • | • | |
| Railroads | • | | | | Prohibited Areas | • | • | • | |
| Political Boundaries | • | | | | MOAs | • | • | • | |
| Lat/Lon Grids | • | • | | | Runway Labels | • | • | • | |
| VORs | • | • | | | Lightning Strike Data | • | • | • | |
| NDBs | • | • | | | NEXRAD Data | • | • | • | |
| Intersections | • | • | | | Traffic Symbols | • | • | • | |
| Class B Airspace | • | • | | | Traffic Labels | • | • | • | |
| Class C Airspace | • | • | | | Water Detail | • | • | • | • |
| Class D Airspace | • | • | | | Active FPL Legs | • | • | • | • |

**Table 3-1  Features Shown at Each Decluttering Level**

## 3.3.6 Panning

The Panning Map Page function allows you to move the map beyond its current limits without adjusting the map scale and to examine information at the pointer location. When you select the panning function — by pressing the small **MFD** knob — a target pointer flashes on the map display. A window also appears at the top of the map display showing the latitude/longitude position of the pointer, the ETE from your present position to the pointer, elevation at the pointer, and bearing and distance to the pointer from your present position.



ETE from present position to tip of pointer

Information is related to the tip of the pointer

Elevation at Pointer

Lat/Lon at Pointer

Map Pointer

Present Position

MAP POINTER

ELEV 371FT

ETE 00:02

N 45°25.42'

W122°40.91'

TRACK UP

TFR NO DATA

9OR6
HAVEN-SYLVAN
HULES
HILLS
MILWAUKIE
SUNNYSIDE
MOKIY
GARDEN HOME-WHITFORD
OATFIELD
ERTON
N
HETZGER
OAK GROVE
3.75NM
33
OSWEGO
LAKE OSWEGO
GLADSTONE
TIGARD
WEST LINN
KING CITY
RIVERGROVE
OREGON

**Figure 3-8 Navigation Map Pointer Location Information**

1) While viewing a Map or Chart page, press the small **MFD** knob. A flashing pointer will appear in the tip of the ownship symbol. The measured information is referenced to the tip of the arrow.

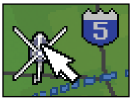


**Figure 3-9 Navigation Map Initial Pointer Location**

2) Turn the large **MFD** knob to move the cursor horizontally. Turn the small **MFD** knob to move the cursor vertically.

3) Press the small **MFD** knob again to cancel panning. The display will return to the previous map view.

## 3.3.7 Selecting Items on the Map

When the target pointer is placed on an object, the name of that object is highlighted (even if the name wasn't originally displayed on the map). This feature applies to airports, NAVAIDs, user-created waypoints, roads, lakes, rivers — just about everything displayed on the map except route lines. When an airport, NAVAID, or user waypoint is selected on the map display, you can review information about the item.

1) While viewing the Navigation Map pages of the Map page group, press the small **MFD** knob to activate panning.

2) Move the cursor with the small and large **MFD** knobs to highlight a feature.

2) Press **ENT** to display information about the highlighted feature.

3) Press the **INFO** soft key (if available) to view more information about the highlighted feature.

4) Press the **WX** soft key (if available) to view TAF and METAR information.

5) Press the small **MFD** knob again to return to panning.

## 3.3.8 Measuring Distances

The "Measure Bearing/Distance" function provides a quick and easy method to determine the bearing and distance between any two points on the Navigation Map.

1) While viewing one of the Navigation Map pages of the Map page group, press **MENU.**

2) Turn the large or small **MFD** knobs to highlight "Measure Bearing/ Distance" and then press **ENT**.

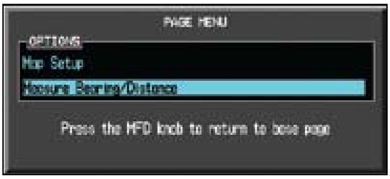

PAGE MENU
OPTIONS
Map Setup
Measure Bearing/Distance
Press the MFD knob to return to base page

**Figure 3-10 Navigation Map Measure Distance Function**

3) Your present position will be marked as the starting reference point. To choose a different starting reference point, turn the large or small **MFD** knobs to desired point and press **ENT**.

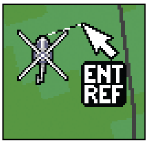
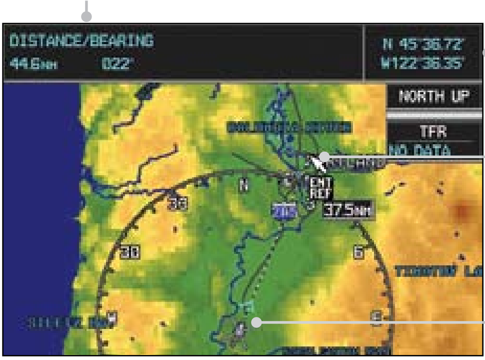


**Figure 3-11 Measure Distance Starting Reference Point**

4) Turn the large or small **MFD** knobs to move the cursor to a reference point. The distance and bearing is displayed at the top of the display.

*Distance and Bearing Between Start and End Points*


DISTANCE/BEARING
44.6NM
022°
N 45°36.72'
W122°36.35'
NORTH UP
TFR
NO DATA
ENT
REF
37.5NM

*Ending Reference Point position*

*Ending Reference Point*

*Starting Reference Point*

**Figure 3-12 Bearing/Distance Measurement**

5) Press the small **MFD** knob to stop measuring.

## 3.3.9 Customizing Navigation Map Pages

The Navigation Map pages are customized by selecting options from the Page Menu. The Page Menu options include choices for Map Setup and Measure Bearing/Distance. The Map Setup choice covers selections for Map, Weather, Traffic, and Aviation depending on the installed equipment of a given aircraft.

## 3.3.10 Map Setup

The Map Setup selection from the Page Menu allows you to customize the displayed items.

1) While viewing one of the Navigation Map pages of the Map page group, press the **MENU** key to display the Navigation Map Page Menu.

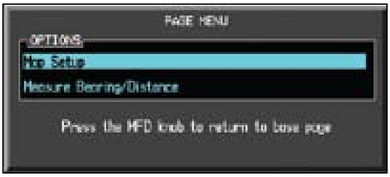

PAGE MENU
OPTIONS
Map Setup
Measure Bearing/Distance
Press the MFD knob to return to base page

**Figure 3-13 Navigation Map Page Menu**

2) With the cursor flashing on the "Map Setup" option. Press the **ENT** key to display the Map Setup Menu.

3) Use the large and small **MFD** knobs to select the Group (Map, Weather, Traffic, or Aviation) and press **ENT** to allow editing of the selected group. The groups shown depend on the features available for equipment installed in your aircraft.

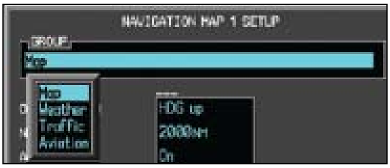

NAVIGATION MAP 1 SETUP
GROUP
Map
Map
Weather
Traffic
Aviation
HDG up
2000NM
On

**Figure 3-14 Navigation Map Page Menu Map Group Selection**

4) Press the small **MFD** knob to return to the Navigation Map Page.

| Map Group | | Weather Group (optional) | | Traffic Group (optional) | | Aviation Group | |
|---|---|---|---|---|---|---|---|
| **Menu Item** | **Adjustment** | **Menu Item** | **Adjustment** | **Menu Item** | **Adjustment** | **Menu Item** | **Adjustment** |
| Orientation | Direction | NEXRAD Viewing Range | Off/Range | Traffic | Off/Modes | Safe Taxi Viewing Range | Off/Range |
| North Up At | Off/Range | NEXRAD Cell Mov | Off/Range | | | Rwy Extension Range | Off/Range |
| Auto Zoom | On/Off | NEXRAD Legend | On/Off | | | INT/NDB Viewing Range * | Off/Range |
| Land Data | On/Off | XM Ltng | Off/Range | | | VOR Viewing Range* | Off/Range |
| Track Vector Length | Off/Time | | | | | Class B/ TMA * | Off/Range |
| Wind Vector | On/Off | | | | | Class C/ TCA * | Off/Range |
| Nav Range Ring | On/Off | | | | | Class D * | Off/Range |
| Topo Data | On/Off | | | | | Restricted* | Off/Range |
| Topo Scale | On/Off | | | | | MOA (Military)* | Off/Range |
| Terrain Data | On/Off | | | | | Other/ ADIZ * | Off/Range |
| Terrain Scale | On/Off | | | | | TFR * | Off/Range |
| Obstacle Viewing Range | Off/Range | | | | | Airways | Off/Modes |
| Lat/Lon Viewing Range | Off/Range | | | | | | |
| Field of View** | On/Off | | | | | | |

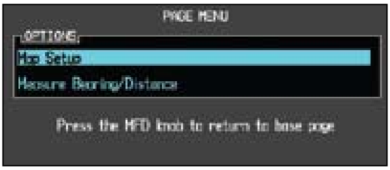
* - shown if the Aviation database is current. ** - shown if Synthetic Vision is available.

**Table 3-2 Navigation Map Page Menu Selections**

#### 3.3.10.1 Map Feature Options

Choose the options to determine the values for display on each Navigation Map. The options you save will be retained until changed. The options may be selecting by using the following procedure:

1) While viewing one of the Navigation Map pages of the Map page group, press the **MENU** key. With "Map Setup" highlighted, press **ENT**.


PAGE MENU
OPTIONS
Map Setup
Measure Bearing/Distance

Press the MFD knob to return to base page

Figure 3-15  Navigation Map Page Menu

With the Map Group active, turn the large **MFD** knob to highlight the desired option.

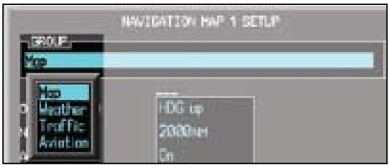

NAVIGATION MAP 1 SETUP
GROUP
Map
Map
Weather
Traffic
Aviation
HDG up
2000NM
On

Figure 3-16  Navigation Map Page Menu Map Group Selection

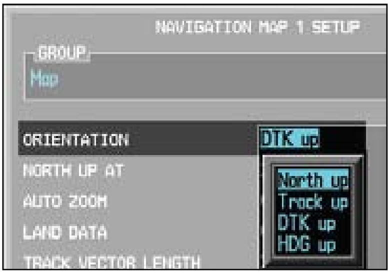
2) Turn the small **MFD** knob to change the highlighted value.

3) Press **ENT** to accept the displayed value. The next option will be highlighted.

4) Press the small **MFD** knob to cancel selection or to end editing and return to the Navigation Map page or turn the large **MFD** knob to the next option.

**Map Orientation**

The Orientation option sets the orientation of the Navigation Map.

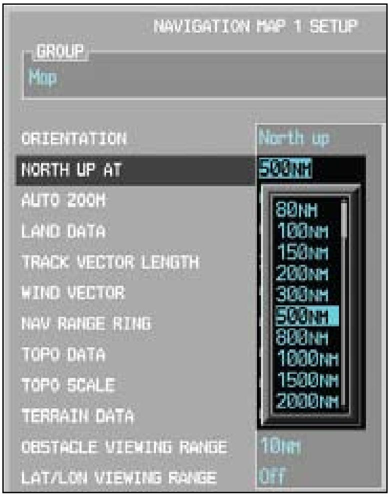

NAVIGATION MAP 1 SETUP
GROUP
Map
North up
Track up
DTK up
HDG up

ORIENTATION DTK up
NORTH UP AT
AUTO ZOOM
LAND DATA
TRACK VECTOR LENGTH

Figure 3-17  Navigation Map Orientation

## North Up At

The North Up At option allows you to select the map range where at and above the selected value the Map Orientation will automatically change to North Up. For example, with the 500 NM value selected in the figure below, when the map range of the MFD is 500 NM or more, the map orientation will automatically become North Up.



NAVIGATION MAP 1 SETUP
GROUP
Map
ORIENTATION North up
NORTH UP AT 500NM
AUTO ZOOM
LAND DATA
TRACK VECTOR LENGTH
WIND VECTOR
NAV RANGE RING
TOPO DATA
TOPO SCALE
TERRAIN DATA
OBSTACLE VIEWING RANGE 10NM
LAT/LON VIEWING RANGE Off

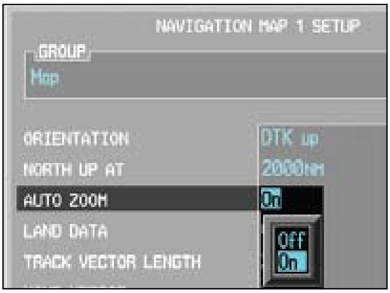
Figure 3-18  Navigation Map “North Up At” Orientation Range Selection

### Auto Zoom

With a valid flight plan, the Auto Zoom feature will automatically change the Navigation Map range depending on the distance to the next waypoint in the flight plan. If enabled, it will also automatically zoom to 1 NM when the aircraft is on the ground or when GPS altitude is less than 400 ft AGL and groundspeed is less than 40 knots. Auto Zoom can be overridden at any time by manually zooming with the **RNG** keys or enabling OBS mode. Auto Zoom is re-enabled once one of the following conditions is met:

1) A waypoint is sequenced,
2) the aircraft transitions from "on ground" to "in air,"
3) a point is reached where the Auto Zoom range matches the manual override range (known as auto-sync),
4) Auto Zoom is toggled off and back on in the Navigation Map Setup page,

   OR
5) OBS mode is turned off.



NAVIGATION MAP 1 SETUP

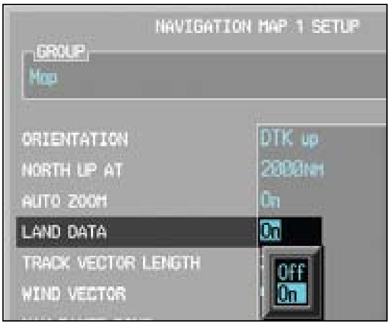
GROUP
Map

ORIENTATION DTK up
NORTH UP AT 2000NM
AUTO ZOOM On
LAND DATA
TRACK VECTOR LENGTH

Figure 3-19  Navigation Map Auto Zoom

## Land Data

The Land Data option selects whether detailed land features, such as rivers, roads, cities, are displayed. Topo features, traffic, terrain, and obstacles will still be displayed, even with Land Data turned off.



NAVIGATION MAP 1 SETUP

GROUP
Map

ORIENTATION DTK up
NORTH UP AT 2000NM
AUTO ZOOM On
LAND DATA On
TRACK VECTOR LENGTH
WIND VECTOR

Figure 3-20  Navigation Map Land Data

## Track Vector Length

When turned on, the Track Vector Length option will show a dashed line and arrow extending from the aircraft icon illustrating the current Track and the distance the aircraft will travel in the selected time.

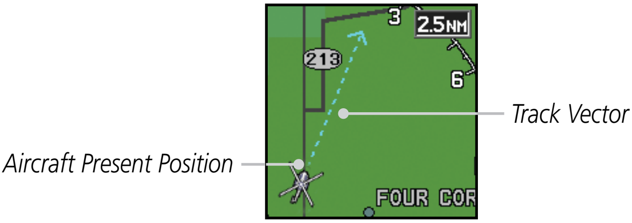
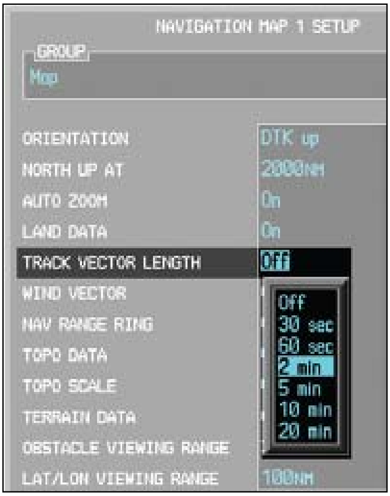


Figure 3-21  Navigation Map Track Vector



NAVIGATION MAP 1 SETUP

GROUP
Map

ORIENTATION DTK up
NORTH UP AT 2000NM
AUTO ZOOM On
LAND DATA On
TRACK VECTOR LENGTH Off
WIND VECTOR
NAV RANGE RING
TOPO DATA
TOPO SCALE
TERRAIN DATA
OBSTACLE VIEWING RANGE
LAT/LON VIEWING RANGE 100NM

Figure 3-22  Navigation Map Track Vector Length Selection

### Wind Vector

The Wind Vector option when turned on will show a box in the top right corner of the MFD indicating the wind direction and speed.

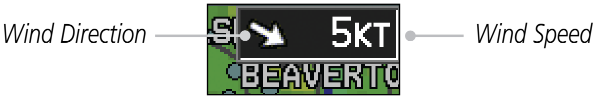
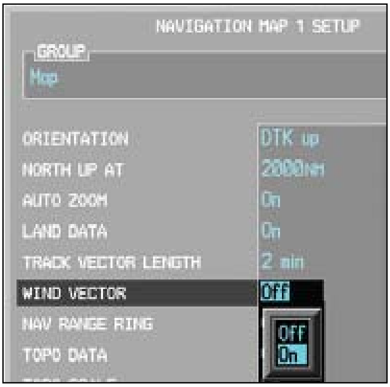


Figure 3-23  Navigation Map Wind Vector Display



NAVIGATION MAP 1 SETUP

GROUP
Map

ORIENTATION DTK up
NORTH UP AT 2000NM
AUTO ZOOM On
LAND DATA On
TRACK VECTOR LENGTH 2 min
WIND VECTOR Off
NAV RANGE RING
TOPO DATA

Figure 3-24  Navigation Map Wind Vector Selection

## Nav Range Ring

When turned on, the Nav Range Ring option will show a ring with a compass rose around your present position on the Navigation Map. The relative size shown on the map will remain the same (25% of the map range).

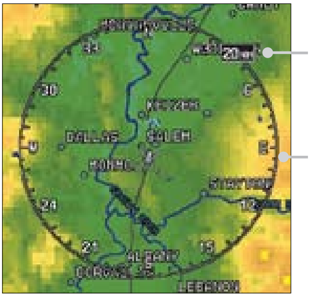
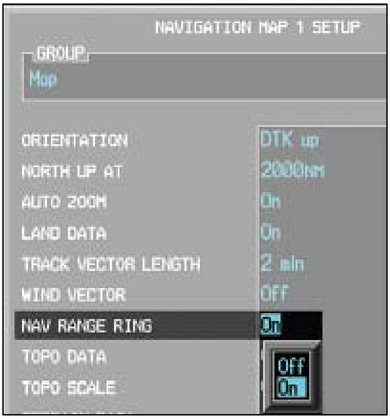

Range Ring Radius
Range Ring with Compass Rose
20NM
33
30
W
24
21
15
12
E
6
DALLAS
SALEM
KEIZER
MONMOUTH
ALBANY
CORVALLIS
LEBANON
STAYTON

Figure 3-25  Navigation Map Range Ring



NAVIGATION MAP 1 SETUP

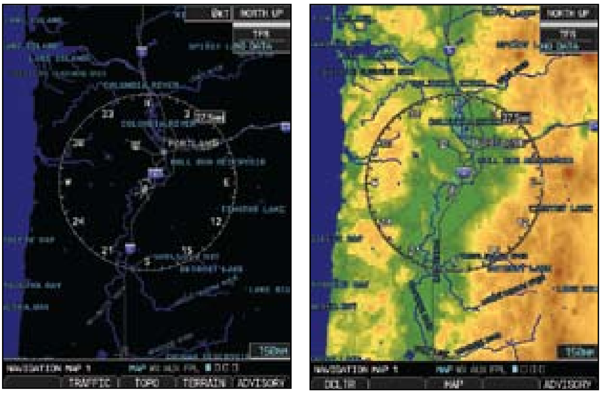
GROUP
Map

ORIENTATION DTK up
NORTH UP AT 2000NM
AUTO ZOOM On
LAND DATA On
TRACK VECTOR LENGTH 2 min
WIND VECTOR Off
NAV RANGE RING On
TOPO DATA
TOPO SCALE

Figure 3-26  Navigation Map Range Ring Selection

## Topo Data

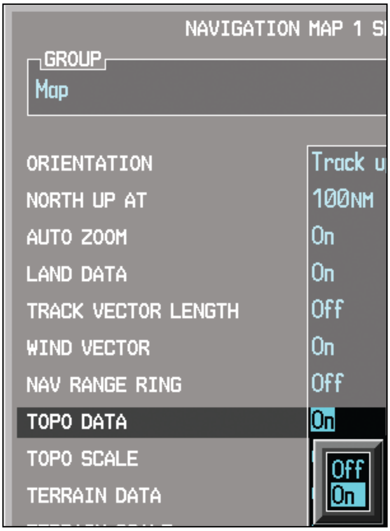
The Topo Data option selects whether the colored topographical features are displayed. Traffic, Land Data, Terrain, and Obstacles will still be displayed even with Topo Data turned off.



*Topo Data Off* *Topo Data On*

NORTH UP
NAVIGATION MAP 1
TRAFFIC
TOPO
TERRAIN
ADVISORY
PORTLAND
150NM

Figure 3-27  Navigation Map Topo Data



NAVIGATION MAP 1 S

GROUP
Map

| | |
|---|---|
| ORIENTATION | Track u |
| NORTH UP AT | 100NM |
| AUTO ZOOM | On |
| LAND DATA | On |
| TRACK VECTOR LENGTH | Off |
| WIND VECTOR | On |
| NAV RANGE RING | Off |
| TOPO DATA | On |
| TOPO SCALE | |
| TERRAIN DATA | |

Figure 3-28  Navigation Map Topo Data Selection

## Topo Scale

The Topo Scale option selects whether the elevation scale for topographical features on the Navigation Map is displayed. The scale will be located on the right side of the display.

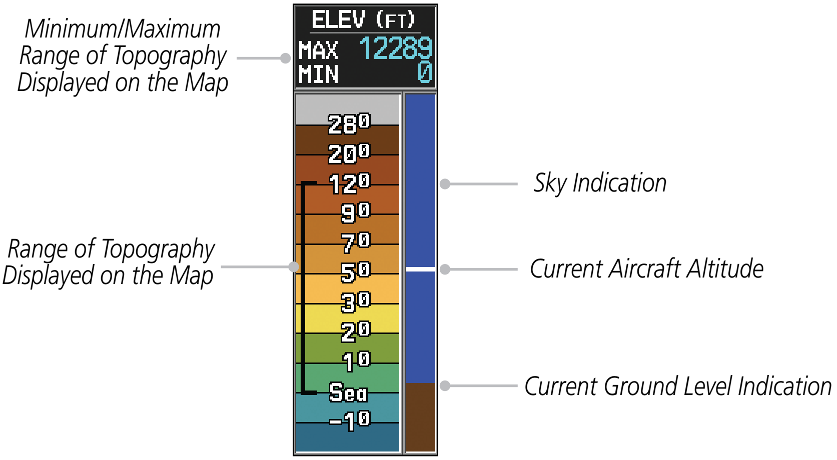
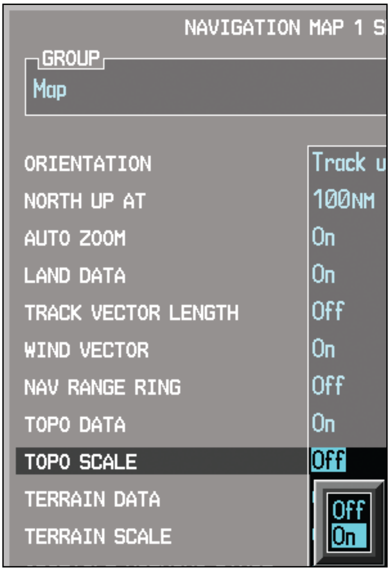

Minimum/Maximum Range of Topography Displayed on the Map
ELEV (FT)
MAX 12289
MIN 0
280
200
120
90
70
50
30
20
10
Sea
-10
Range of Topography Displayed on the Map
Sky Indication
Current Aircraft Altitude
Current Ground Level Indication

Figure 3-29  Navigation Map Topo Scale



NAVIGATION MAP 1 S

GROUP
Map

ORIENTATION Track u
NORTH UP AT 100NM
AUTO ZOOM On
LAND DATA On
TRACK VECTOR LENGTH Off
WIND VECTOR On
NAV RANGE RING Off
TOPO DATA On
TOPO SCALE Off
TERRAIN DATA
TERRAIN SCALE

Figure 3-30  Navigation Map Topo Scale Selection

## Terrain Data

The Terrain Data option selects whether Terrain Data is shown on the Navigation Map. The Terrain Data Icon will be shown when Terrain has been selected. Terrain and Topo data displays are mutually exclusive.

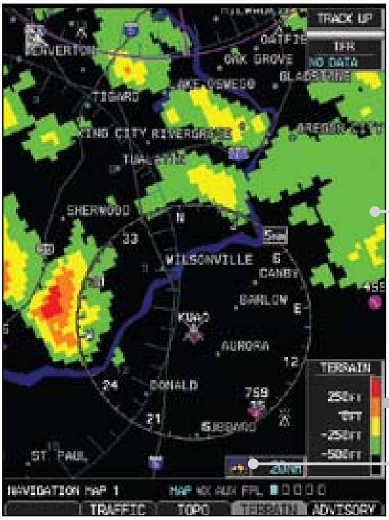
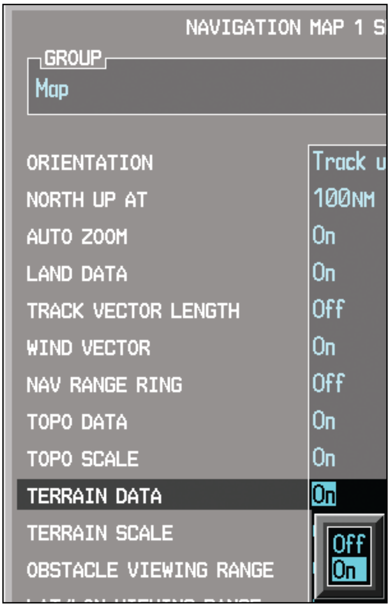

TRACK UP
TFR
NO DATA
Terrain Data
TERRAIN
Terrain Elevation Scale
Terrain Data Icon
NAVIGATION MAP 1
TRAFFIC
TOPO
TERRAIN
ADVISORY

Figure 3-31  Navigation Map Terrain Data



NAVIGATION MAP 1 S

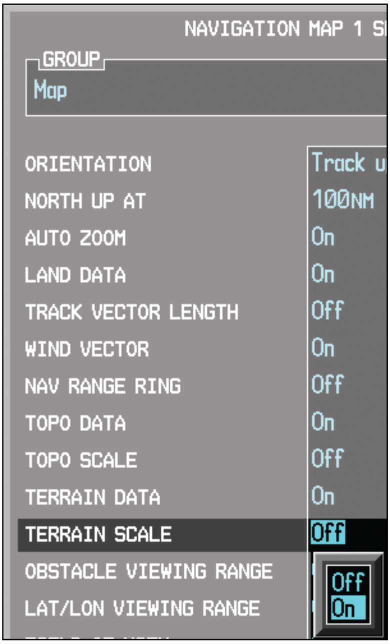
GROUP
Map

| | |
|---|---|
| ORIENTATION | Track u |
| NORTH UP AT | 100NM |
| AUTO ZOOM | On |
| LAND DATA | On |
| TRACK VECTOR LENGTH | Off |
| WIND VECTOR | On |
| NAV RANGE RING | Off |
| TOPO DATA | On |
| TOPO SCALE | On |
| TERRAIN DATA | On |
| TERRAIN SCALE | |
| OBSTACLE VIEWING RANGE | |

Figure 3-32  Navigation Map Terrain Data Selection

## Terrain Scale

The Terrain Scale option selects whether the Terrain Scale is shown on the Navigation Map. The Terrain scale will be located on the right side of the display.



NAVIGATION MAP 1 S

GROUP
Map

| | |
|---|---|
| ORIENTATION | Track u |
| NORTH UP AT | 100NM |
| AUTO ZOOM | On |
| LAND DATA | On |
| TRACK VECTOR LENGTH | Off |
| WIND VECTOR | On |
| NAV RANGE RING | Off |
| TOPO DATA | On |
| TOPO SCALE | Off |
| TERRAIN DATA | On |
| TERRAIN SCALE | Off |
| OBSTACLE VIEWING RANGE | |
| LAT/LON VIEWING RANGE | |

Figure 3-33  Navigation Map Terrain Scale Selection

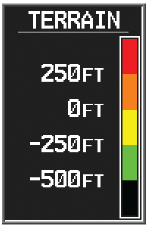


Figure 3-34  Navigation Map Terrain Scale

## Obstacle Data Viewing Range

The Obstacle Data Viewing Range option selects whether the Obstacle Data is shown on the Navigation Map. Obstacles will be shown at and below the selected map range. Map ranges above this value will not show the Obstacle Data. In the range selection example below where 30 NM is selected, obstacles will be shown at map ranges of 30 NM and lower.

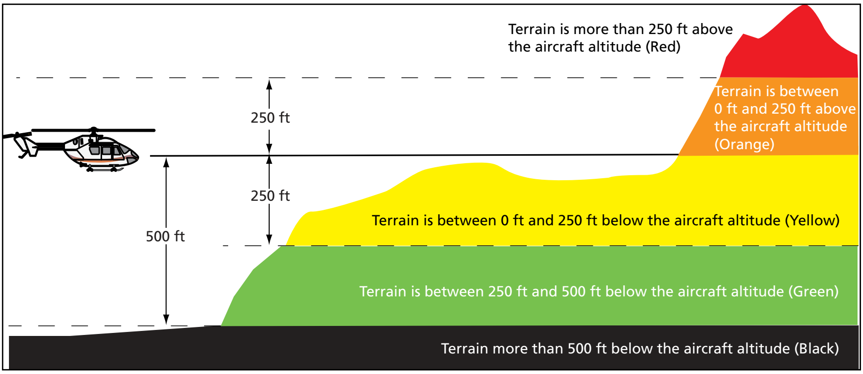

Terrain is more than 250 ft above the aircraft altitude (Red)
Terrain is between 0 ft and 250 ft above the aircraft altitude (Orange)
250 ft
250 ft
500 ft
Terrain is between 0 ft and 250 ft below the aircraft altitude (Yellow)
Terrain is between 250 ft and 500 ft below the aircraft altitude (Green)
Terrain more than 500 ft below the aircraft altitude (Black)

Figure 3-35 TERRAIN Altitude/Color Correlation

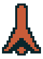
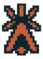
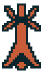
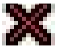
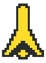
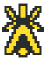
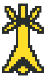
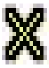
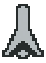
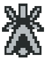
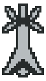
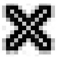
| | Unlighted Obstacle | | Lighted Obstacle | | Potential Impact Points | Terrain Color | Terrain/ Obstacle Location | Alert Level |
|---|---|---|---|---|---|---|---|---|
| | < 1000 ft AGL | > 1000 ft AGL | < 1000 ft AGL | > 1000 ft AGL | | | | |
| **Obstacle Symbol** | |  |  |  |  | Red | Terrain/Obstacle at or above current aircraft altitude | WARNING (Red) |
| | |  |  |  |  | Yellow | Terrain/Obstacle between 250 ft and 0 ft below current aircraft altitude | CAUTION (Yellow) |
| | |  |  |  |  | Grey | Terrain/Obstacle 250 ft, or more, below current aircraft altitude | (Gray) |

Table 3-3 HSVT Terrain Obstacle Colors and Symbology

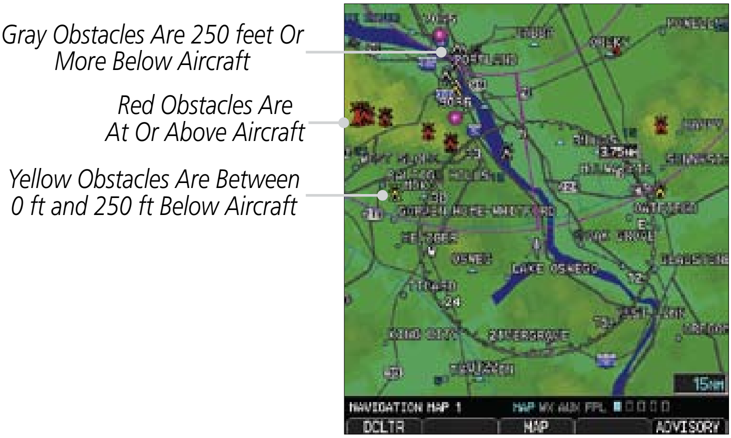

Gray Obstacles Are 250 feet Or More Below Aircraft
Red Obstacles Are At Or Above Aircraft
Yellow Obstacles Are Between 0 ft and 250 ft Below Aircraft
PORTLAND
LAKE OSWEGO
15NM
NAVIGATION MAP 1
MAP WX AUX FPL
DCLTR
MAP
ADVISORY

Figure 3-36 Navigation Map Obstacle Data

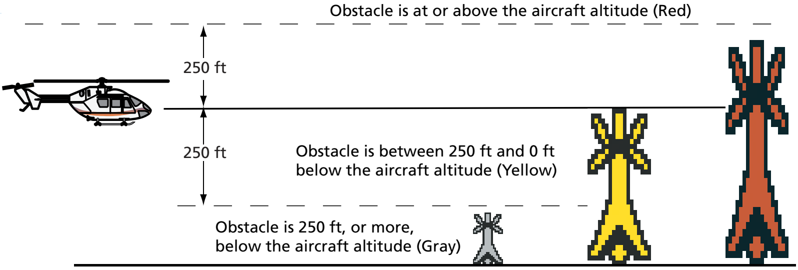
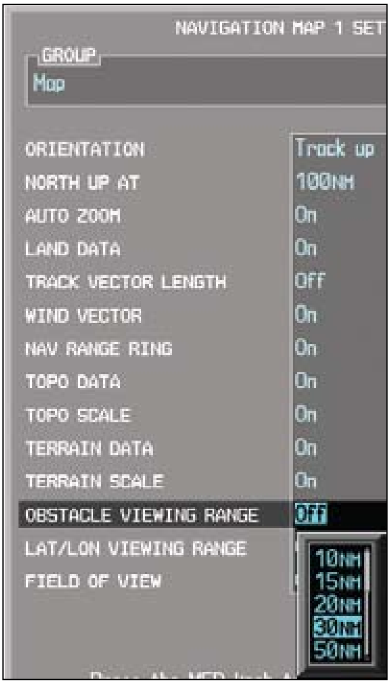

Obstacle is at or above the aircraft altitude (Red)
250 ft
250 ft
Obstacle is between 250 ft and 0 ft below the aircraft altitude (Yellow)
Obstacle is 250 ft, or more, below the aircraft altitude (Gray)

Figure 3-37 H-TAWS Obstacle Altitude Colors and Symbology



NAVIGATION MAP 1 SET

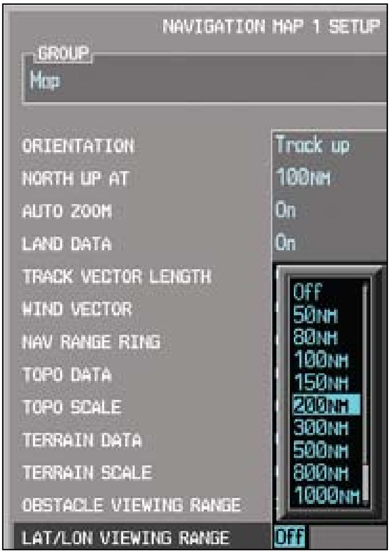
GROUP
Map

ORIENTATION Track up
NORTH UP AT 100NM
AUTO ZOOM On
LAND DATA On
TRACK VECTOR LENGTH Off
WIND VECTOR On
NAV RANGE RING On
TOPO DATA On
TOPO SCALE On
TERRAIN DATA On
TERRAIN SCALE On
OBSTACLE VIEWING RANGE Off
LAT/LON VIEWING RANGE
FIELD OF VIEW

Figure 3-38  Navigation Map Obstacle Data Selection

## Lat/Lon Viewing Range

The Lat/Lon Viewing Range option selects whether Lat/Lon line is shown on the MFD. Lat/Lon lines will be shown at and below the selected map range. Map ranges above the selected value will not show the Lat/Lon lines. When Off is selected, Lat/Lon lines will not be shown. In the figure below where 200 NM is selected, Lat/Lon lines will be shown at map ranges of 200 NM and lower.



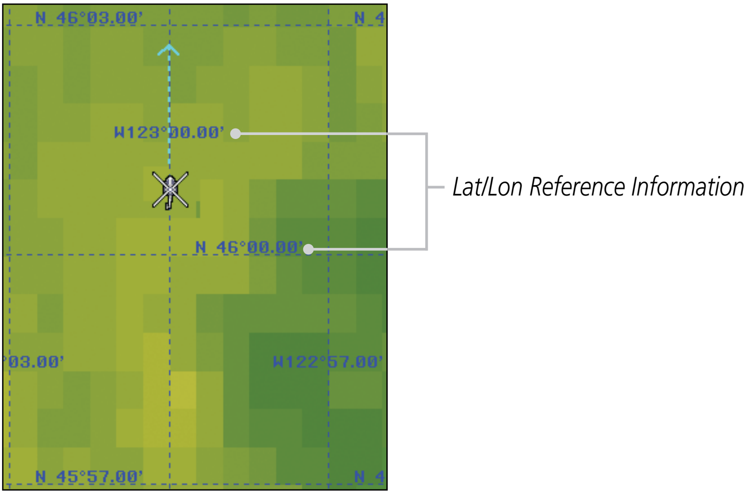
NAVIGATION MAP 1 SETUP

GROUP
Map

ORIENTATION Track up
NORTH UP AT 100NM
AUTO ZOOM On
LAND DATA On
TRACK VECTOR LENGTH
WIND VECTOR
NAV RANGE RING
TOPO DATA
TOPO SCALE
TERRAIN DATA
TERRAIN SCALE
OBSTACLE VIEWING RANGE
LAT/LON VIEWING RANGE Off

Off
50NM
80NM
100NM
150NM
200NM
300NM
500NM
800NM
1000NM

Figure 3-39  Navigation Map Lat/Lon Selection

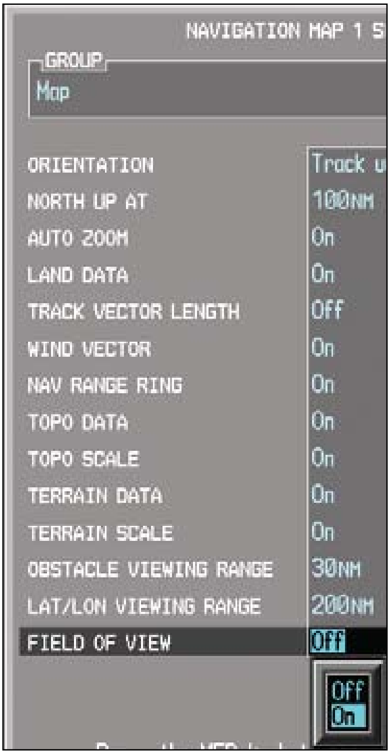


N 46°03.00'
N 4
W123°00.00'
N 46°00.00'
03.00'
W122°57.00'
N 45°57.00'
N 4
Lat/Lon Reference Information

Figure 3-40  Navigation Map Lat/Lon Information

## Field of View

The PFD Field of View used for the Garmin Synthetic Vision Technology (SVT™) option (when enabled) can be represented on the MFD Navigation Map Page lateral image. Two dashed lines forming a V-shape in front of the aircraft symbol on the MFD, represent the forward viewing area shown on the PFD.



NAVIGATION MAP 1 S

GROUP: Map

| | |
|---|---|
| ORIENTATION | Track u |
| NORTH UP AT | 100NM |
| AUTO ZOOM | On |
| LAND DATA | On |
| TRACK VECTOR LENGTH | Off |
| WIND VECTOR | On |
| NAV RANGE RING | On |
| TOPO DATA | On |
| TOPO SCALE | On |
| TERRAIN DATA | On |
| TERRAIN SCALE | On |
| OBSTACLE VIEWING RANGE | 30NM |
| LAT/LON VIEWING RANGE | 200NM |
| FIELD OF VIEW | Off |

Figure 3-41  Navigation Map Field of View Selection

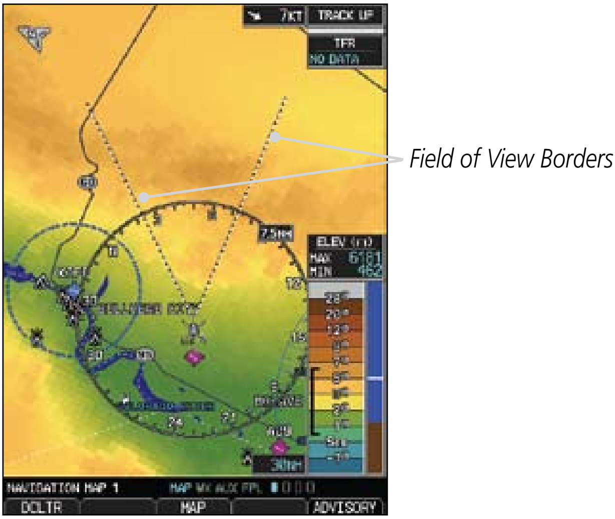
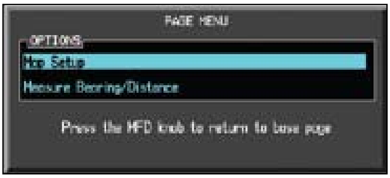

7KT
TRACK UP
TFR
NO DATA
Field of View Borders
7.5NM
ELEV (FT)
MAX 6181
MIN 462
30NM
NAVIGATION MAP 1
MAP WX AUX FPL
DCLTR
MAP
ADVISORY

Figure 3-42  Navigation Map Field of View on the MFD

## 3.3.10.2 Weather Feature Options (Optional)

The Weather group selection from the Map Setup Page Menu allows you to customize the NEXRAD Viewing Range, NEXRAD Cell Movement, and Lightning Viewing range. Weather is an optional feature that requires a GDL 69/69A and an XM Weather subscription, or other weather product (such as GFDS).


PAGE MENU
OPTIONS
Map Setup
Measure Bearing/Distance

Press the MFD knob to return to base page

Figure 3-43  Navigation Map Page Menu

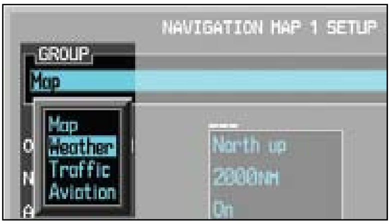
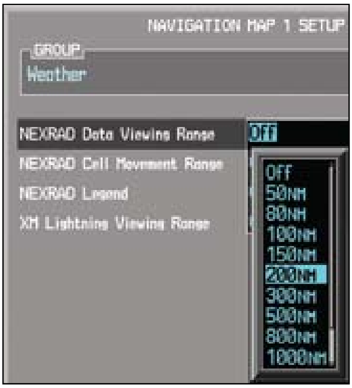

NAVIGATION MAP 1 SETUP
GROUP
Map
Map
Weather
Traffic
Aviation
North up
2000NM
On

Figure 3-44  Navigation Map Page Menu Weather Group Selection

## NEXRAD Viewing Range

The NEXRAD Viewing Range option selects whether the NEXRAD weather products is shown on the MFD. NEXRAD weather products will be shown at and below the selected map range. When Off is selected, NEXRAD weather will not be shown. Map ranges above the selected value will not show the NEXRAD weather products. In the example below where 200 NM is selected, the NEXRAD weather products will be shown at map ranges of 200 NM and lower.



NAVIGATION MAP 1 SETUP

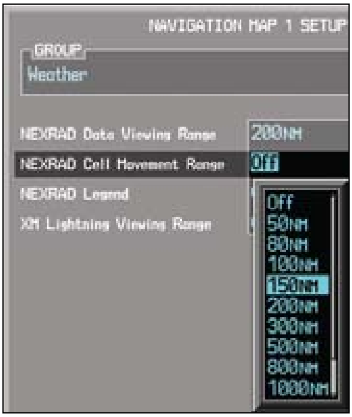
GROUP
Weather

NEXRAD Data Viewing Range Off
NEXRAD Cell Movement Range
NEXRAD Legend
XM Lightning Viewing Range

Figure 3-45  NEXRAD Viewing Range Selection

## NEXRAD Cell Movement

The NEXRAD Cell Movement option selects whether NEXRAD Cell Movement is shown on the Navigation Map. NEXRAD Cell Movement will be shown at and below the selected map range. When Off is selected, NEXRAD Cell Movement will not be shown. In the example below where 150 NM is selected, the NEXRAD Cell Movement will be shown at map ranges of 150 NM and lower.



NAVIGATION MAP 1 SETUP

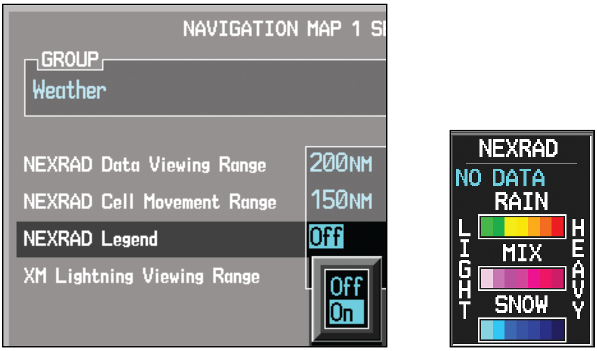
GROUP
Weather

NEXRAD Data Viewing Range 200NM
NEXRAD Cell Movement Range Off
NEXRAD Legend
XM Lightning Viewing Range

Figure 3-46  NEXRAD Cell Movement Selection

## NEXRAD Legend

The NEXRAD Legend selection provides the option of displaying an abbreviated version of the NEXRAD legend in the top right region of the MFD.

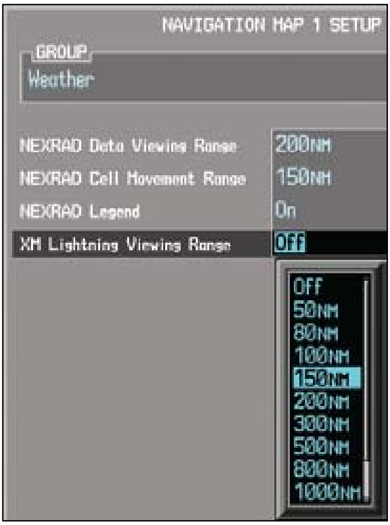


Weather
NEXRAD Data Viewing Range 200NM
NEXRAD Cell Movement Range 150NM
NEXRAD Legend Off
XM Lightning Viewing Range
Off
On

Figure 3-47  NEXRAD Legend Selection

## Lightning Viewing Range

The Lightning Viewing Range option selects whether the Lightning weather products is shown on the Navigation Map. Lightning weather products will be shown at and below the selected map range. When Off is selected, Lightning weather will not be shown. In the figure below where 200 NM is selected, Lightning symbols will be shown at map ranges of 200 NM and lower.



Weather
NEXRAD Data Viewing Range 200NM
NEXRAD Cell Movement Range 150NM
NEXRAD Legend On
XM Lightning Viewing Range Off
Off
50NM
80NM
100NM
150NM
200NM
300NM
500NM
800NM
1000NM

Figure 3-48  Lightning Viewing Range Selection

### 3.3.10.3 Traffic Feature Options (Optional)

The Traffic group selection from the Map Setup Page Menu allows you to customize the display of traffic on the Navigation Map. The Traffic function requires the installation of a compatible traffic device. TIS and TAS cannot be displayed at the same time. If the aircraft has a TAS unit installed, the GDU 620 will be configured for TAS. If no TAS unit is installed and a GTX Mode-S transponder is installed then the GDU 620 will be configured for TIS. A pilot can tell which data is being displayed by the label in the top left corner (TAS OPERATING vs TIS OPERATING). TIS data comes from a GTX transponder. Coverage is limited to specific areas as shown in the Airmen's Information Manual (AIM). TAS data comes from a TAS unit such as a Garmin GTS 800 or 820, Skywatch 497, KTA 810, or other unit. Coverage follows the aircraft. In the Navigation Map page setup you can select the maximum range at which traffic symbols are shown. Once outside of the selected range, traffic will be decluttered. The Traffic soft key will still be available.

***NOTE:*** *Traffic is automatically decluttered from Nav Map 1 and 2 when the map scale is above 150 NM.*

| Traffic Selection | Display Result |
|---|---|
| Off | No traffic displayed |
| All Traffic | All types of traffic displayed |
| TA/PA | Traffic Alerts and Proximity Alerts displayed |
| TA Only | Traffic Alerts Only displayed |

**Table 3-4 Navigation Map Traffic Display Options**

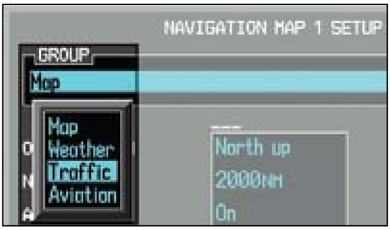


**Figure 3-49 Navigation Map Page Menu Traffic Group Selection**

1) While viewing the Navigation Map Setup page and the Traffic Group active, turn the large **MFD** knob to highlight the "Traffic" options.

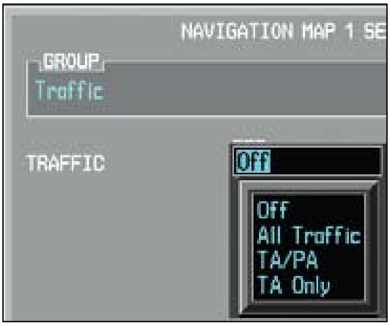

NAVIGATION MAP 1 SE
GROUP
Traffic
TRAFFIC
Off
Off
All Traffic
TA/PA
TA Only

Figure 3-50  Navigation Map Page Menu Traffic Options

2) Turn the small **MFD** knob to change the highlighted value.

3) Press **ENT** to accept the displayed value.

4) Press the small **MFD** knob to cancel selection or to end editing and return to the Navigation Map page or turn the large **MFD** knob to the next option.

### 3.3.10.4 Aviation Feature Options

The Aviation group selection from the Map Setup Page Menu allows you to customize the display of SafeTaxi information, Runway Extensions, Intersection/NDB locations, VOR locations, and TFR icons on the Navigation Map.

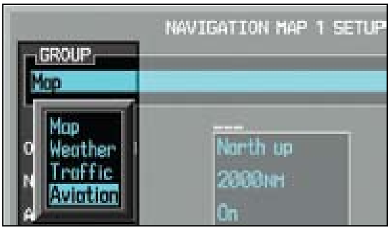

NAVIGATION MAP 1 SETUP
GROUP
Map
Map
Weather
Traffic
Aviation
North up
2000NM
On

Figure 3-51  Navigation Map Page Menu Aviation Group Selection

## SafeTaxi™ Viewing Range

The SafeTaxi™ viewing range option selects whether SafeTaxi information is shown on the Navigation Map. SafeTaxi will be shown at and below the selected map range. When Off is selected, SafeTaxi information will not be shown. In the example below where 3 NM is selected, the SafeTaxi information will be shown at map ranges of 3 NM and lower.

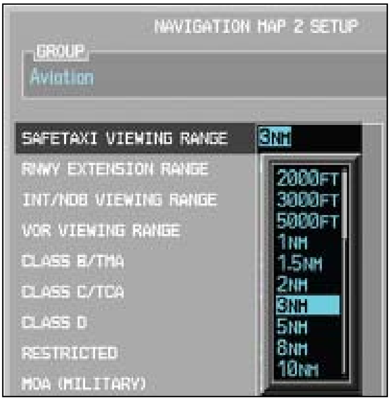

NAVIGATION MAP 2 SETUP
GROUP
Aviation
SAFETAXI VIEWING RANGE
3NM
RNWY EXTENSION RANGE
INT/NDB VIEWING RANGE
VOR VIEWING RANGE
CLASS B/TMA
CLASS C/TCA
CLASS D
RESTRICTED
MOA (MILITARY)
2000FT
3000FT
5000FT
1NM
1.5NM
2NM
3NM
5NM
8NM
10NM

Figure 3-52 Navigation Map Safe Taxi Viewing Range Selection

## Runway Extension Range

The Runway Extension Range option selects the whether Runway Extensions is shown for the destination airport runway. Runway Extensions will be shown at and below the selected map range. When Off is selected, Runway Extensions will not be shown.

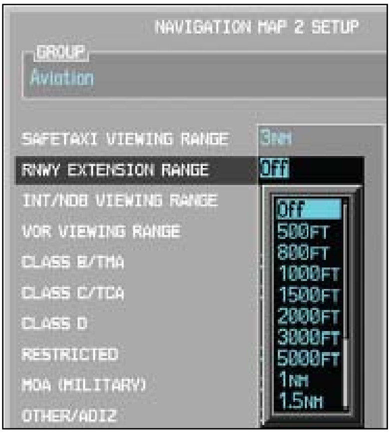
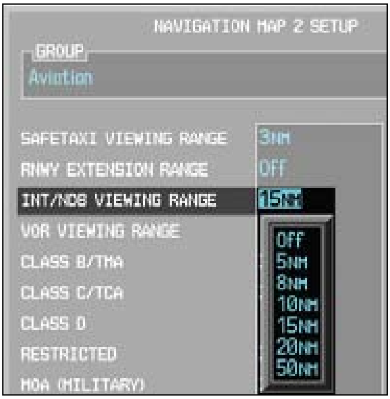

NAVIGATION MAP 2 SETUP
GROUP
Aviation
SAFETAXI VIEWING RANGE
3NM
RNWY EXTENSION RANGE
Off
INT/NDB VIEWING RANGE
VOR VIEWING RANGE
CLASS B/TMA
CLASS C/TCA
CLASS D
RESTRICTED
MOA (MILITARY)
OTHER/ADIZ
Off
500FT
800FT
1000FT
1500FT
2000FT
3000FT
5000FT
1NM
1.5NM

Figure 3-53 Navigation Map Runway Extension Selection

## INT/NDB Viewing Range

The INT/NDB viewing range option selects whether Intersection and NDB information is shown on the Navigation Map. Intersection and NDB information will be shown at and below the selected map range. When Off is selected, the information will not be shown. In the example below where 15 NM is selected, INT/NDBs will be shown at map ranges of 15 NM and lower.



NAVIGATION MAP 2 SETUP

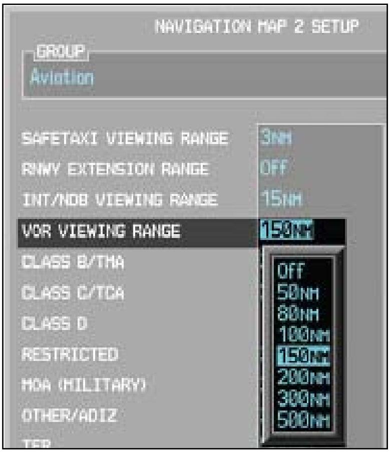
GROUP
Aviation

SAFETAXI VIEWING RANGE 3NM
RNWY EXTENSION RANGE OFF
INT/NDB VIEWING RANGE 15NM
VOR VIEWING RANGE
CLASS B/TMA
CLASS C/TCA
CLASS D
RESTRICTED
MOA (MILITARY)

Figure 3-54  Navigation Map INT/NDB Viewing Range Selection

## VOR Viewing Range

The VOR viewing range option selects whether VOR information is shown on the Navigation Map. VOR information will be shown at and below the selected map range. When Off is selected, the information will not be shown. In the example below where 150 NM is selected, VOR information will be shown at map ranges of 150 NM and lower.



NAVIGATION MAP 2 SETUP

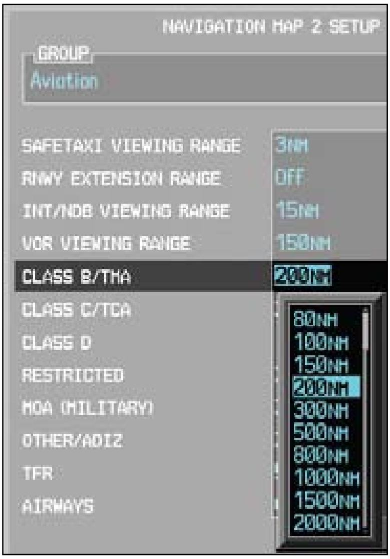
GROUP
Aviation

SAFETAXI VIEWING RANGE 3NM
RNWY EXTENSION RANGE OFF
INT/NDB VIEWING RANGE 15NM
VOR VIEWING RANGE 150NM
CLASS B/TMA
CLASS C/TCA
CLASS D
RESTRICTED
MOA (MILITARY)
OTHER/ADIZ
TFR

Figure 3-55  Navigation Map VOR Viewing Range Selection

### Class B/TMA Airspace Viewing Range

The Class B/TMA airspace viewing range option selects whether Class B/TMA airspace information is shown on the Navigation Map. Class B/TMA airspace information will be shown at and below the selected map range. When Off is selected, the information will not be shown. In the example below where 200 NM is selected, Class B/TMA airspace information will be shown at map ranges of 200 NM and lower.


NAVIGATION MAP 2 SETUP

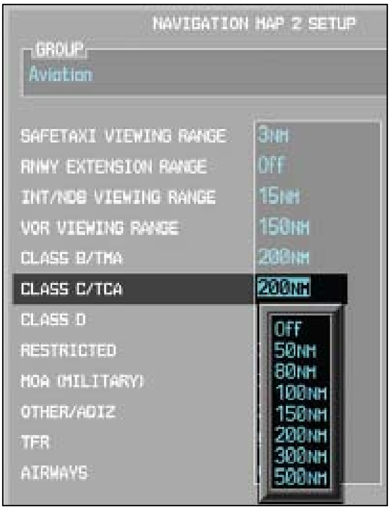
GROUP
Aviation

SAFETAXI VIEWING RANGE 3NM
RNWY EXTENSION RANGE OFF
INT/NDB VIEWING RANGE 15NM
VOR VIEWING RANGE 150NM
CLASS B/TMA 200NM
CLASS C/TCA
CLASS D
RESTRICTED
MOA (MILITARY)
OTHER/ADIZ
TFR
AIRWAYS

Figure 3-56  Navigation Map Class B/TMA Viewing Range Selection

## Class C/TCA Airspace Viewing Range

The Class C/TCA airspace viewing range option selects whether Class C/TCA airspace information is shown on the Navigation Map. Class C/TCA airspace information will be shown at and below the selected map range. When Off is selected, the information will not be shown. In the example below where 200 NM is selected, Class C/TCA airspace information will be shown at map ranges of 200 NM and lower.



NAVIGATION MAP 2 SETUP

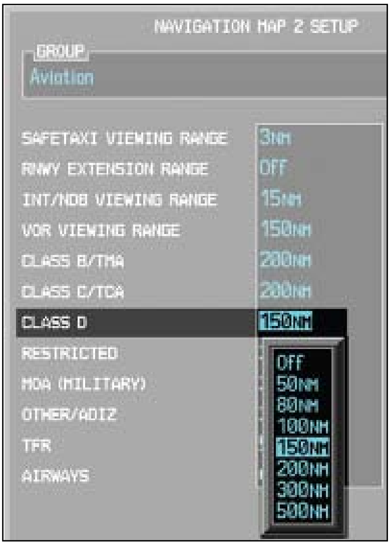
GROUP
Aviation

SAFETAXI VIEWING RANGE 3NM
RNWY EXTENSION RANGE Off
INT/NDB VIEWING RANGE 15NM
VOR VIEWING RANGE 150NM
CLASS B/TMA 200NM
CLASS C/TCA 200NM
CLASS D
RESTRICTED
MOA (MILITARY)
OTHER/ADIZ
TFR
AIRWAYS

Figure 3-57 Navigation Map Class C/TCA Viewing Range Selection

## Class D Airspace Viewing Range

The Class D airspace viewing range option selects whether Class D airspace information is shown on the Navigation Map. Class D airspace information will be shown at and below the selected map range. When Off is selected, the information will not be shown. In the example below where 150 NM is selected, Class D airspace information will be shown at map ranges of 150 NM and lower.



NAVIGATION MAP 2 SETUP

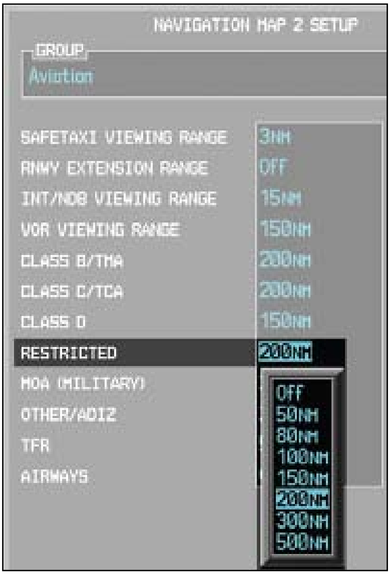
GROUP
Aviation

| | |
|---|---|
| SAFETAXI VIEWING RANGE | 3NM |
| RNWY EXTENSION RANGE | OFF |
| INT/NDB VIEWING RANGE | 15NM |
| VOR VIEWING RANGE | 150NM |
| CLASS B/TMA | 200NM |
| CLASS C/TCA | 200NM |
| CLASS D | 150NM |
| RESTRICTED | |
| MOA (MILITARY) | |
| OTHER/ADIZ | |
| TFR | |
| AIRWAYS | |

Figure 3-58  Navigation Map Class D Viewing Range Selection

## Restricted Airspace Viewing Range

The Restricted airspace viewing range option selects whether the map range is shown on the Navigation Map. Restricted airspace information will be shown at and below the selected map range. When Off is selected, the information will not be shown. In the example below where 200 NM is selected, Restricted airspace information will be shown at map ranges of 200 NM and lower.



NAVIGATION MAP 2 SETUP

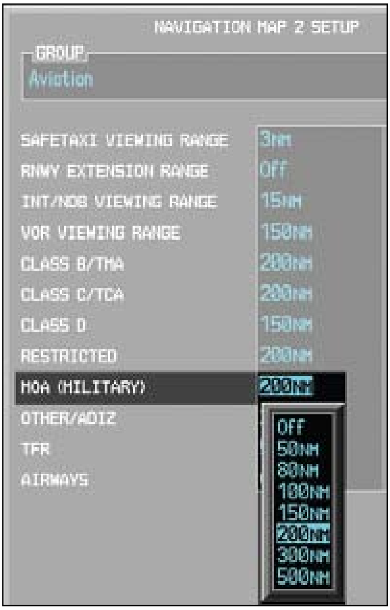
GROUP
Aviation

| | |
|---|---|
| SAFETAXI VIEWING RANGE | 3NM |
| RNWY EXTENSION RANGE | OFF |
| INT/NDB VIEWING RANGE | 15NM |
| VOR VIEWING RANGE | 150NM |
| CLASS B/TMA | 200NM |
| CLASS C/TCA | 200NM |
| CLASS D | 150NM |
| RESTRICTED | 200NM |
| MOA (MILITARY) | |
| OTHER/ADIZ | |
| TFR | |
| AIRWAYS | |

Figure 3-59  Navigation Map Restricted Airspace Viewing Range Selection

## MOA (Military) Viewing Range

The MOA (Military) viewing range option selects whether MOA (Military) information is shown on the Navigation Map. MOA airspace information will be shown at and below the selected map range. When Off is selected, the information will not be shown. In the example below where 200 NM is selected, MOA airspace information will be shown at map ranges of 200 NM and lower.



NAVIGATION MAP 2 SETUP

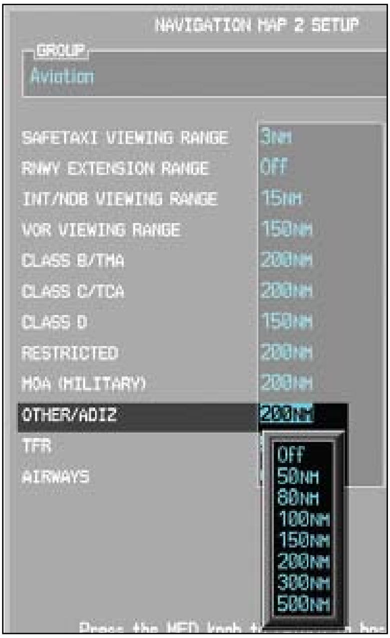
GROUP
Aviation

SAFETAXI VIEWING RANGE 3NM
RNWY EXTENSION RANGE Off
INT/NDB VIEWING RANGE 15NM
VOR VIEWING RANGE 150NM
CLASS B/TMA 200NM
CLASS C/TCA 200NM
CLASS D 150NM
RESTRICTED 200NM
MOA (MILITARY) 200NM
OTHER/ADIZ
TFR
AIRWAYS

Figure 3-60  Navigation Map MOA (Military) Viewing Range Selection

## Other/ADIZ Airspace Viewing Range

The Other/ADIZ airspace viewing range option selects whether Other/ADIZ airspace information is shown on the Navigation Map. Other/ADIZ airspace information will be shown at and below the selected map range. When Off is selected, the information will not be shown. In the example below where 200 NM is selected, Other/ADIZ airspace information will be shown at map ranges of 200 NM and lower.



NAVIGATION MAP 2 SETUP

GROUP: Aviation

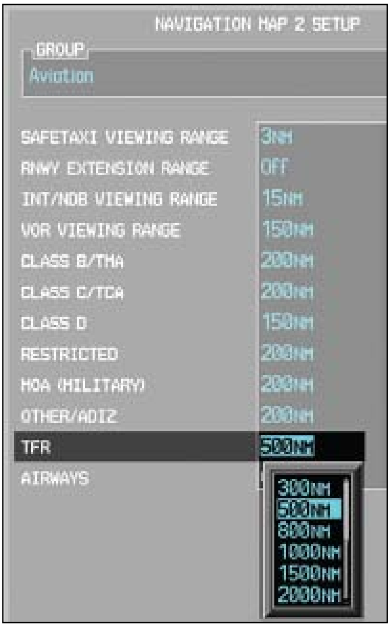
| | |
|---|---|
| SAFETAXI VIEWING RANGE | 3NM |
| RNWY EXTENSION RANGE | Off |
| INT/NDB VIEWING RANGE | 15NM |
| VOR VIEWING RANGE | 150NM |
| CLASS B/TMA | 200NM |
| CLASS C/TCA | 200NM |
| CLASS D | 150NM |
| RESTRICTED | 200NM |
| MOA (MILITARY) | 200NM |
| OTHER/ADIZ | 200NM |
| TFR | |
| AIRWAYS | |

Press the MFD knob t

Figure 3-61  Navigation Map Other/ADIZ Viewing Range Selection

### TFR Viewing Range (Optional)

The Temporary Flight Restriction (TFR) viewing range option selects whether TFR information is shown on the Navigation Map. TFR information will be shown at and below the selected map range. When Off is selected, the information will not be shown. In the example below where 500 NM is selected, TFR information will be shown at map ranges of 500 NM and lower. This optional feature requires an active data link receiver.



NAVIGATION MAP 2 SETUP

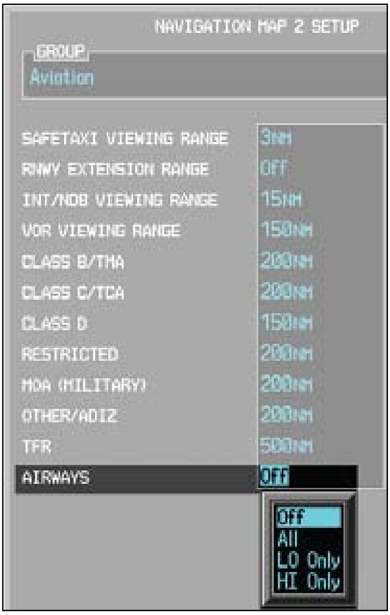
GROUP
Aviation

SAFETAXI VIEWING RANGE 3NM
RNWY EXTENSION RANGE Off
INT/NDB VIEWING RANGE 15NM
VOR VIEWING RANGE 150NM
CLASS B/TMA 200NM
CLASS C/TCA 200NM
CLASS D 150NM
RESTRICTED 200NM
MOA (MILITARY) 200NM
OTHER/ADIZ 200NM
TFR 500NM
AIRWAYS

Figure 3-62  Navigation Map TFR Viewing Range Selection

## Airways

The Airways option allows you to select the airways that are shown on the Navigation Map. All, Low only, and Hi only Airways may be selected. When Off is selected, airways will not be shown.



NAVIGATION MAP 2 SETUP

GROUP
Aviation

| | |
|---|---|
| SAFETAXI VIEWING RANGE | 3NM |
| RNWY EXTENSION RANGE | Off |
| INT/NDB VIEWING RANGE | 15NM |
| VOR VIEWING RANGE | 150NM |
| CLASS B/TMA | 200NM |
| CLASS C/TCA | 200NM |
| CLASS D | 150NM |
| RESTRICTED | 200NM |
| MOA (MILITARY) | 200NM |
| OTHER/ADIZ | 200NM |
| TFR | 500NM |
| AIRWAYS | Off |

Figure 3-63 Airways Selection

## 3.3.11 Split Screen (Optional)

External Video is an optional function that displays video provided by an externally mounted video source on the aircraft. The Map Display setup will reflect the setup for MAP PAGE 1 except that TERRAIN, TOPO, and TRAFFIC can be turned on and off separately on this page.

1) While viewing the Map function, turn the small **MFD** knob to the third Navigation Map page.

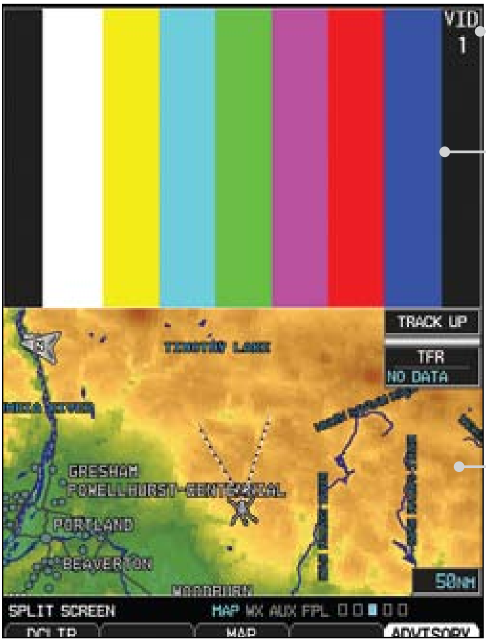

VID 1
TRACK UP
TFR
NO DATA
GRESHAM
PORTLAND
BEAVERTON
50NM
SPLIT SCREEN
MAP WX AUX FPL
MAP
ADVISORY
Current Video Source
Display of External Video Source
Map Display

Figure 3-64 External Video

2) The External Video page will show the external video on the top half of the MFD and a Navigation Map will be shown on the lower half.

3) To select the other external video source, press the **MENU** key.

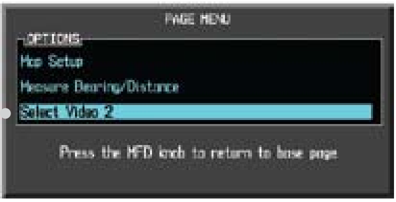

PAGE MENU
OPTIONS
Map Setup
Measure Bearing/Distance
Select Video 2
Press the MFD knob to return to base page
Selected Video Source

Figure 3-65 Aux Mode System Setup Page Menu

4) Turn the large or small **MFD** knobs to highlight the Video selection and then press **ENT**.

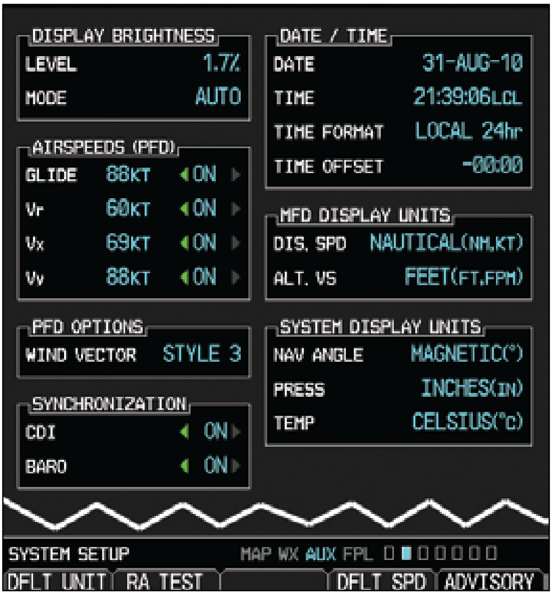
## 3.4 Aux Mode Pages

The Aux mode provides pages for System Setup, XM Information (if installed), and system Status.

### 3.4.1 System Settings

G500H system settings are managed from the Aux Mode System Setup Page. The following settings can be changed:

- Display Brightness (Mode and Level)
- Airspeeds (Glide, $V_R$, $V_X$, and $V_Y$)
- PFD Options (Wind Vector)
- Date/Time (Date, Time, Time Format, and Time Offset)
- MFD Display Units (Distance/Speed and Altitude/Vertical Speed)
- System Display Units (Navigation Angle Reference, Pressure Units, and Temperature Units)



DISPLAY BRIGHTNESS
LEVEL 1.7%
MODE AUTO

AIRSPEEDS (PFD)
GLIDE 88KT ◀ON ▶
Vr 60KT ◀ON ▶
Vx 69KT ◀ON ▶
Vy 88KT ◀ON ▶

PFD OPTIONS
WIND VECTOR STYLE 3

SYNCHRONIZATION
CDI ◀ ON ▶
BARO ◀ ON ▶

DATE / TIME
DATE 31-AUG-10
TIME 21:39:06LCL
TIME FORMAT LOCAL 24hr
TIME OFFSET -00:00

MFD DISPLAY UNITS
DIS, SPD NAUTICAL(NM,KT)
ALT, VS FEET(FT,FPM)

SYSTEM DISPLAY UNITS
NAV ANGLE MAGNETIC(°)
PRESS INCHES(IN)
TEMP CELSIUS(°C)

Figure 3-66 Aux Mode System Setup Page

The default values set by the installer during installation are restored by using the Page Menu options. The “Restore Unit Defaults” selection restores all default settings. Pressing the **DFLT UNIT** soft key will also restore the Default Unit settings. The “Restore Airspeed Defaults” menu selection or soft key restores only the Airspeed Reference default settings. The **RA TEST** soft key activates the Radar Altimeter test mode. See the Radio Altimeter section in Section 2 for details.

***NOTE:** Not all Radar Altimeters have the TEST function.*

1) While viewing the Aux mode System Setup page, press the **MENU** key.

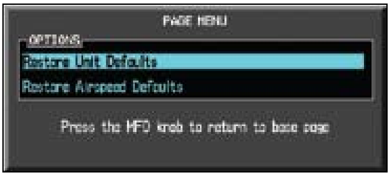

PAGE MENU
OPTIONS
Restore Unit Defaults
Restore Airspeed Defaults
Press the MFD knob to return to base page

Figure 3-67  Aux Mode System Setup Page Menu

2) Turn the large or small **MFD** knobs to highlight the desired selection and then press **ENT**.

### 3.4.1.1 Display Brightness

Display brightness mode may be set to manual or automatic. The automatic mode will set the display brightness based on the ambient light. The manual mode allows the setting of display brightness between 0 and 100%.

1) Turn the large **MFD** knob to reach the AUX page group. Press the small **MFD** knob to activate the cursor.

2) The Level will be highlighted. Turn the small **MFD** knob to select the Display Brightness Level and then press **ENT.**

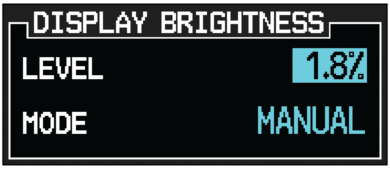

DISPLAY BRIGHTNESS
LEVEL 1.8%
MODE MANUAL

Figure 3-68  Aux Mode Display Brightness Level Selection

3) If the Level was changed, Manual will be selected. Press the cursor to save the settings. If you press **ENT** the Mode setting will be highlighted.

4) With the Mode value highlighted, turn the small **MFD** knob to select Auto or Manual and then press **ENT.**

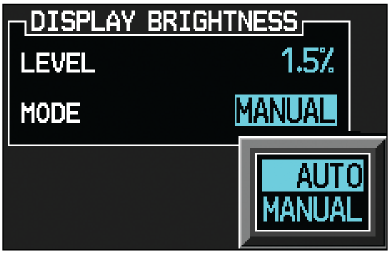
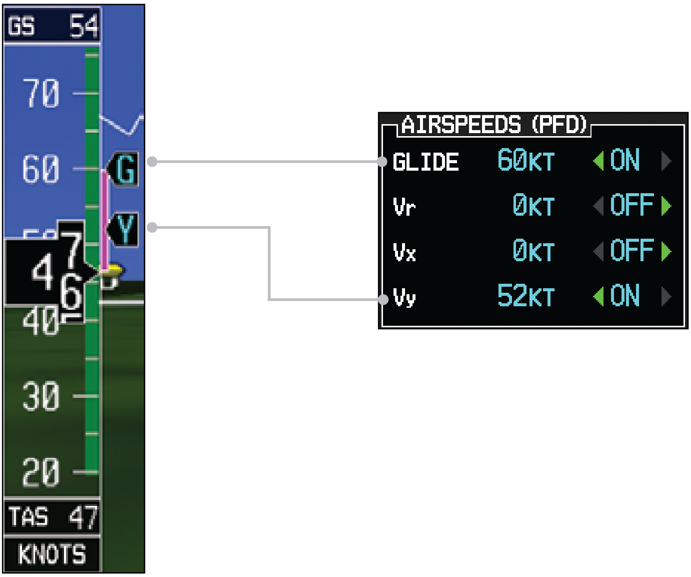

DISPLAY BRIGHTNESS
LEVEL 1.5%
MODE MANUAL

Figure 3-69  Aux Mode Display Brightness Mode Selection

### 3.4.1.2 Airspeed Reference Marks

The airspeed reference marks for the PFD are adjusted with this function. A marker will appear on the PFD Airspeed tape at the selected speed when the value is set to "On." Default reference airspeeds are set during installation. When power is cycled, the values you set will be reset.

***NOTE:** When power is cycled, the Airspeed Reference values are reset. During preflight, the Airspeed Reference values should be checked and set appropriately for the current aircraft configuration and performance.*



AIRSPEEDS (PFD)
GLIDE 60KT ON
Vr 0KT OFF
Vx 0KT OFF
Vy 52KT ON

**Figure 3-70 Airspeed References shown on PFD when activated**

1) While viewing the System Setup page of the AUX page group, press the small **MFD** knob to activate the cursor. Turn the large **MFD** knob to highlight the desired Airspeeds value.

2) Turn the small **MFD** knob to select the value and press **ENT**.

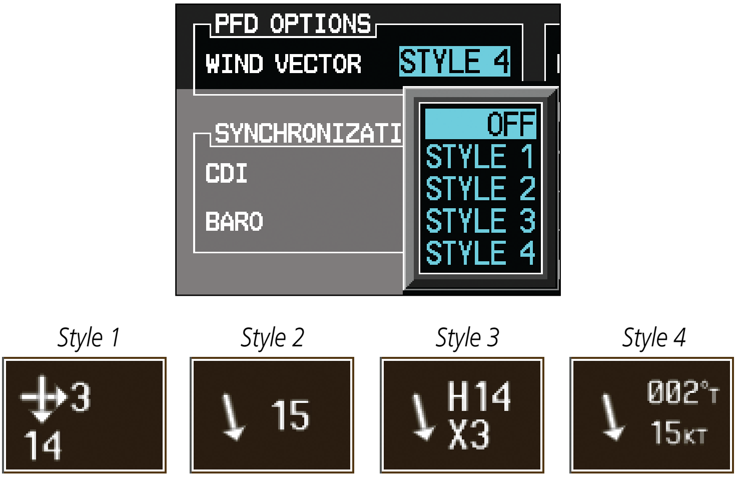
3) The On/Off setting will now be highlighted. Turn the small **MFD** knob to select On or Off and press **ENT**. The next value will be highlighted.

### 3.4.1.3 PFD Options - Wind Vector

When selected, wind vector information is displayed on the PFD to the left of the HSI. Four styles are available.

1) While viewing the System Setup page of the AUX page group, press the small **MFD** knob to activate the cursor. Turn the large **MFD** knob to highlight the desired Wind Vector value.

2) Turn the small **MFD** knob to select the style and press **ENT**.



WIND VECTOR STYLE 4

*Style 1* *Style 2* *Style 3* *Style 4*

**Figure 3-71 Wind Vector Style**

3) When a Wind Vector style is selected, a Wind Vector box with the chosen style will be displayed to the left of the HSI on the PFD. When OFF is selected, the Wind Vector box will not be displayed.

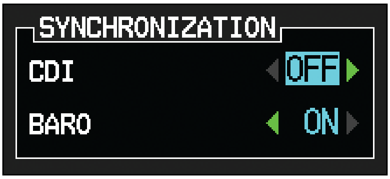
### 3.4.1.4 Synchronization (Dual Installations Only)

Dual GDU 620 units when connected in the aircraft may be set up to communicate and share information by “Crossfilling” or synchronizing information between the two units.

When Barometric Correction is synchronized, any changes to the Barometric Setting on either GDU will change it on both GDUs.

Crossfill synchronization for CDI and Baro Corrections are selected in Aux mode.

1) While viewing the first page of the AUX page group, press the small **MFD** knob and turn the large **MFD** knob to highlight “CDI” or “BARO” in the “Synchronization” box in both units.



SYNCHRONIZATION
CDI ◄ OFF ►
BARO ◄ ON ►

Figure 3-72 Dual Unit Synchronization

2) Turn the small **MFD** knob to select “ON” or “OFF.”

3) Press **ENT**.

Dual GDU 620 units when connected in the aircraft may be set up to communicate and share information by “Crossfilling” or synchronizing information between the two units.

The following information is always synchronized between both GDU 620 units:

- Selected Altitude
- Selected Heading
- Selected Course
- Selected Vertical Speed
- Airspeed Bug Values
- Airspeed Color Band Values
- System Pressure Units
- System Temperature Units

The following information can be synchronized between GDU 620s, or changed independently, depending on the Crossfill Synchronization Settings:

- Barometric Correction (default ON)
- Selected CDI (default OFF)

When Barometric Correction is synchronized, any changes to the Barometric Setting on either GDU will change it on both GDUs.

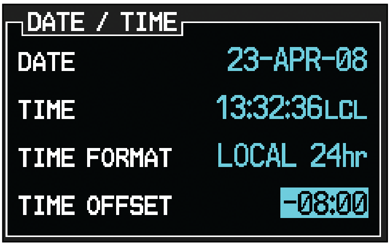
When the CDI is synchronized, any changes to the selected CDI on either GDU will change it on both GDUs. Either pilot can change the OBS course on either GNS. If the pilot selects GPS1 on the CDI and GNS1 is in OBS mode, any course changes will move the OBS on GNS1, GDU1, and GDU2 (if the copilot has GPS1 displayed on the CDI). Similarly, if the pilot selects GPS2 on the CDI and GNS2 is in OBS mode, any course changes will move the OBS on GNS2, GDU1, and GDU2 (if the copilot has GPS2 displayed on the CDI).

AHRS 1 and ADC 1 will only be displayed on GDU1. AHRS2 and ADC2 will only be displayed on GDU2.

The **CDI** soft key toggles between selection of GPS or VOR/LOC as the active navigation source. In a single GDU 620 system, the GDU **CDI** soft key will change the source in the connected navigator and making a source change in the navigator will be reflected in the GDU 620. In a dual GDU 620 system, the **CDI** keys in the navigator are disabled.

### 3.4.1.5 Date and Time

The Date and Time options allow you to select the time to change UTC time to local time with a time offset.



DATE / TIME
DATE 23-APR-08
TIME 13:32:36LCL
TIME FORMAT LOCAL 24hr
TIME OFFSET -08:00

Figure 3-73 Time Format and Offset

| Time Zone | Local Standard Time Offset | Local Daylight Savings Time Offset |
|---|---|---|
| Atlantic | -4 hours | -3 hours |
| Eastern | -5 hours | -4 hours |
| Central | -6 hours | -5 hours |
| Mountain | -7 hours | -6 hours |
| Pacific | -8 hours | -7 hours |
| Alaskan | -9 hours | -8 hours |
| Hawaiian | -10 hours | -9 hours |

Table 3-5 U.S. Time Zone Offsets

1) While viewing the System Setup page of the AUX page group, press the small **MFD** knob to activate the cursor. Turn the large **MFD** knob to highlight “Time Format.”

2) Turn the small **MFD** knob to select Local 12hr, Local 24hr, or UTC and then press **ENT**. When Local 12 or 24 hr mode is selected, the Time Offset value will then be highlighted.

3) Turn the small **MFD** knob to select the desired offset and then press **ENT**.

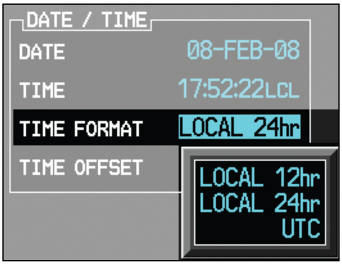

DATE / TIME
DATE 08-FEB-08
TIME 17:52:22LCL
TIME FORMAT LOCAL 24hr
TIME OFFSET

Figure 3-74 Date and Time Values

4) A Time Offset may be entered by using the large and small **MFD** knobs to change the values. Press **ENT** after completing any changes.

5) Press the small **MFD** knob to exit adjustments.

### 3.4.1.6 MFD Display Units

The MFD Display Units options allow you to select the units of measurement conventions displayed on the MFD. Distance and Speed selections are Imperial, Metric, or Nautical. Altitude and Vertical speed selections are Feet or Meters.

1) While viewing the System Setup page of the AUX page group, press the small **MFD** knob to activate the cursor. Turn the large **MFD** knob to highlight the Distance and Speed (DIS, SPD) units of measurement.

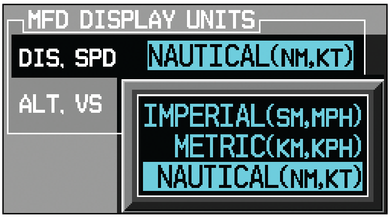

MFD DISPLAY UNITS
DIS, SPD NAUTICAL(NM,KT)
ALT, VS

Figure 3-75 Distance and Speed MFD Display Units

2) Turn the small **MFD** knob to select Imperial, Metric, or Nautical and then press **ENT**. The Altitude and Vertical Speed units selection will now be highlighted.

3) Turn the small **MFD** knob to select Feet or Meters and then press **ENT**.

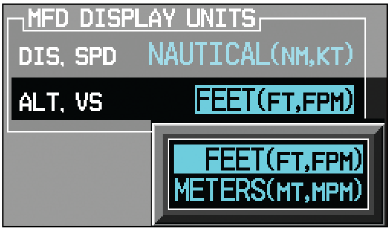

MFD DISPLAY UNITS
DIS, SPD NAUTICAL(NM,KT)
ALT, VS FEET(FT,FPM)
FEET(FT,FPM)
METERS(MT,MPM)

Figure 3-76 Altitude and Vertical Speed MFD Display Units

### 3.4.1.7 System Display Units

The System Display Units options allows the selection of units to display values for Navigation Angle (Magnetic or True), Barometric Setting (inches or Hectopascals), and Temperature (Fahrenheit or Celsius). Pressing the **DFLT UNIT** soft key will restore the Default Unit settings.

1) While viewing the System Setup page of the AUX page group, press the small **MFD** knob to activate the cursor. Turn the large **MFD** knob to highlight the System Display Units selection titled "Nav Angle."

***CAUTION:*** *The Nav Angle display units (Magnetic or True) must be set to the same type in both the GDU 620 and GNS navigators.*

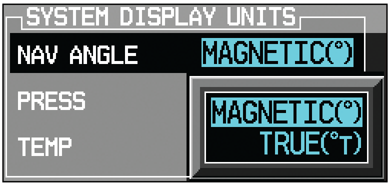

SYSTEM DISPLAY UNITS
NAV ANGLE MAGNETIC(°)
PRESS
TEMP
MAGNETIC(°)
TRUE(°T)

Figure 3-77 Nav Angle System Display Units

2) Turn the small **MFD** knob to select Magnetic or True and then press **ENT**. The Barometric Pressure Setting value will now be highlighted. When True is selected, a "T" will appear to the right of the heading value on the PFD.

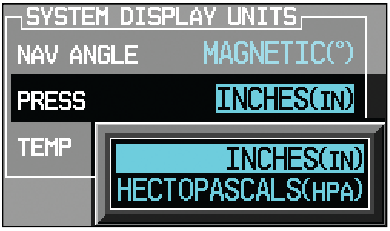
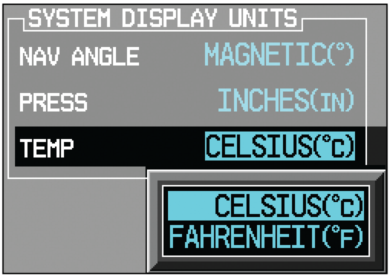

SYSTEM DISPLAY UNITS
NAV ANGLE MAGNETIC(°)
PRESS INCHES(IN)
TEMP
INCHES(IN)
HECTOPASCALS(HPA)

Figure 3-78 Barometric Setting System Display Units

3) Turn the small **MFD** knob to select the Barometric Setting units and then press **ENT**. The Temperature value will now be highlighted.



SYSTEM DISPLAY UNITS

NAV ANGLE MAGNETIC(°)

PRESS INCHES(IN)

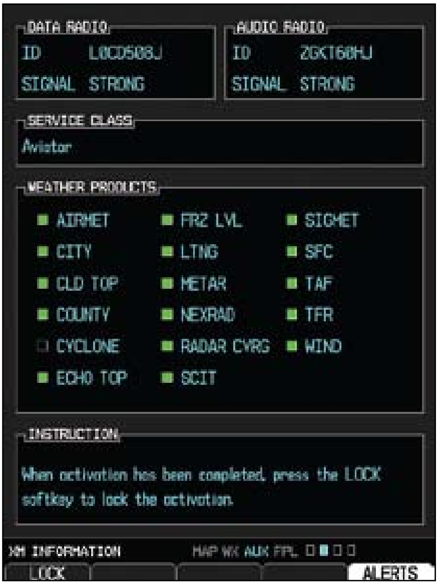
TEMP CELSIUS(°C)

Figure 3-79 Temperature System Display Units

4) Turn the small **MFD** knob to select the Temperature units and then press **ENT**.

## 3.4.2 XM Information (Optional)

The Aux mode XM Information page displays information about the XM radios, service, and products when the GDL 69/69A is installed and the XM Radio service is activated.



DATA RADIO

ID L0CD508J

SIGNAL STRONG

AUDIO RADIO

ID ZGK160HJ

SIGNAL STRONG

SERVICE CLASS

Aviator

WEATHER PRODUCTS

- ■ AIRMET
- ■ CITY
- ■ CLD TOP
- ■ COUNTY
- □ CYCLONE
- ■ ECHO TOP
- ■ FRZ LVL
- ■ LTNG
- ■ METAR
- ■ NEXRAD
- ■ RADAR CVRG
- ■ SCIT
- ■ SIGMET
- ■ SFC
- ■ TAF
- ■ TFR
- ■ WIND

INSTRUCTION

When activation has been completed, press the LOCK softkey to lock the activation.

Figure 3-80 XM Information

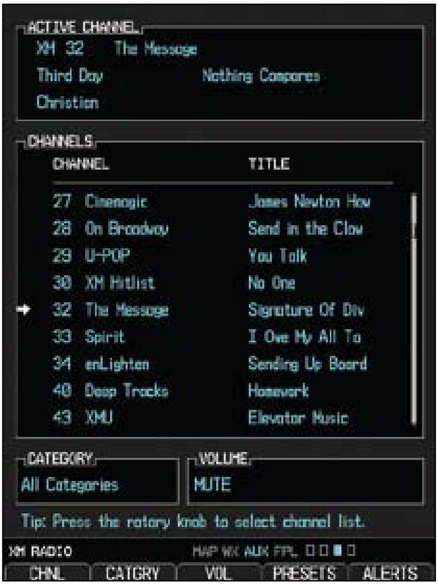
## 3.4.3 XM Entertainment Radio (Optional)

Audio entertainment is available through the XM Satellite Radio Service when activated in the optional installation of the GDL 69A. The GDU 620 serves as the display and control head for your remotely mounted GDL 69A. XM Satellite Radio allows you to enjoy a variety of radio programming over long distances without having to constantly search for new stations. Based on signal from satellites, coverage far exceeds land-based transmissions. When enabled, the XM Satellite Radio audio entertainment is accessible in Aux Mode.

The information on the XM Satellite Radio display is composed of four areas: the Active Channel, Available Channels, Category of the highlighted Channel, and the Volume setting. The Active Channel window shows the Channel Name and Number, Artist, Song Title, and Category.

1) Turn the large **MFD** knob to the AUX page group.

2) Turn the small **MFD** knob to the XM Radio page.



ACTIVE CHANNEL
XM 32 The Message
Third Day Nothing Compares
Christian

CHANNELS

| | CHANNEL | TITLE |
|---|---|---|
| | 27 Cinemagic | James Newton How |
| | 28 On Broadway | Send in the Clow |
| | 29 U-POP | You Talk |
| | 30 XM Hitlist | No One |
| ➔ | 32 The Message | Signature Of Div |
| | 33 Spirit | I Owe My All To |
| | 34 enLighten | Sending Up Board |
| | 40 Deep Tracks | Homework |
| | 43 XMU | Elevator Music |

CATEGORY: All Categories

VOLUME: MUTE

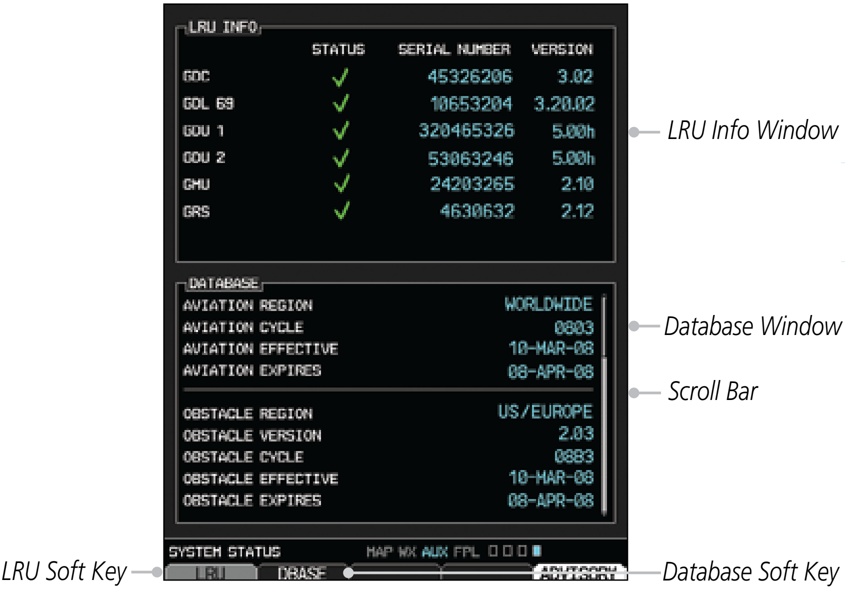
Tip: Press the rotary knob to select channel list.

Figure 3-81 XM Entertainment Radio

A description of XM Entertainment Radio is provided in Section 5 - Additional Features.

## 3.4.4 System Status

The System Status Page displays the statuses, serial numbers, and software version numbers for all detected system LRUs. Pertinent information on all system databases is also displayed. Active LRUs are indicated by green check marks; failed LRUs by red “X’s.” Failed LRUs should be noted and a service center or Garmin-authorized dealer informed.



LRU INFO

| | STATUS | SERIAL NUMBER | VERSION |
|---|---|---|---|
| GDC | ✓ | 45326206 | 3.02 |
| GDL 69 | ✓ | 10653204 | 3.20.02 |
| GDU 1 | ✓ | 320465326 | 5.00h |
| GDU 2 | ✓ | 53063246 | 5.00h |
| GMU | ✓ | 24203265 | 2.10 |
| GRS | ✓ | 4630632 | 2.12 |

DATABASE

| | |
|---|---|
| AVIATION REGION | WORLDWIDE |
| AVIATION CYCLE | 0803 |
| AVIATION EFFECTIVE | 10-MAR-08 |
| AVIATION EXPIRES | 08-APR-08 |
| OBSTACLE REGION | US/EUROPE |
| OBSTACLE VERSION | 2.03 |
| OBSTACLE CYCLE | 0803 |
| OBSTACLE EFFECTIVE | 10-MAR-08 |
| OBSTACLE EXPIRES | 08-APR-08 |

Figure 3-82 LRU and Database Information

1) Turn the large **MFD** knob to the AUX page group.

2) Turn the small **MFD** knob to the System Status page.

3) Press the **LRU** soft key to highlight the first item in the LRU Info window.

4) Turn the small **MFD** knob to scroll through the items in the LRU Info window in case more items are available than are displayed. If more items are available than can be displayed in the window, a scroll bar will show on the right side of the window.

5) Press the **DBASE** soft key to highlight the first item in the Database window.

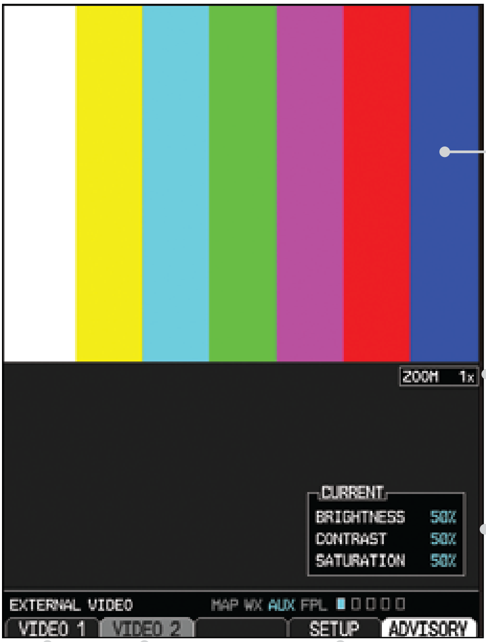
6) Turn the small or large **MFD** knobs to scroll through the items in the Database window in case more items are available than are displayed. If more items are available than can be displayed in the window, a scroll bar will show on the right side of the window.

## 3.4.5 External Video (optional)

External Video is an optional function that displays video provided by an externally mounted video source on the aircraft.

1) Turn the large **MFD** knob to the Aux page group.

2) The External Video page is the first page in the Aux page group.



ZOOM 1x

CURRENT
BRIGHTNESS 50%
CONTRAST 50%
SATURATION 50%

*Display of External Video Source*

*Current Zoom Level*

*Current Setup Values For The Selected Video Source*

*Video Source Selections*

*Video Source Setup*

**Figure 3-83 External Video**

### 3.4.5.1 Select Video Source

If more than one video source is available, the **Video 1** and **Video 2** soft keys will be available at the bottom of the display.

1) Touch the **Video 1** soft key to select Video 1 source for viewing and setup.

2) Touch the **Video 2** soft key to select Video 2 source for viewing and setup.

### 3.4.5.2 Zoom

1) While viewing the External Video function, press the **Up Rng Arrow** key to increase the zoom up to 10x magnification. Zoom level is made through digital magnification.

2) Press the **Down Rng Arrow** key to decrease the zoom level down to a minimum of 1x.

### 3.4.5.3 Panning

1) While viewing the External Video function, press the small **MFD** knob to activate panning.

2) Turn the small **MFD** knob clockwise to pan up (the map will move down).

3) Turn the small **MFD** knob counterclockwise to pan down (the map will move up).

4) Turn the large **MFD** knob clockwise to pan to the right (the map will move left).

5) Turn the large **MFD** knob counterclockwise to pan to the left (the map will move right).

6) Press the small **MFD** knob to exit panning.

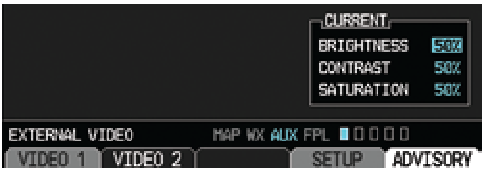
### 3.4.5.4 Setup

The display of each video source is set up individually.

1) While viewing the External Video page, press the soft key for the desired Video source (**Video 1** or **Video 2**).

2) Press the **Setup** soft key.

3) The Current value for Brightness will be selected. Use the following directions for each value.



CURRENT
BRIGHTNESS 50%
CONTRAST 50%
SATURATION 50%

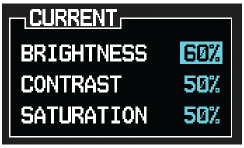
Figure 3-84 External Video Setup

4) After selecting the desired settings, press the small **MFD** knob or the **Setup** soft key to exit editing.

### Brightness Adjustment

1) While viewing the External Video page and the desired Video source, press the **Setup** soft key.

2) The Current value for Brightness will be selected. Turn the small **MFD** knob to adjust the Brightness value.



CURRENT
BRIGHTNESS 60%
CONTRAST 50%
SATURATION 50%

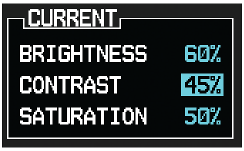
Figure 3-85 External Video Brightness Adjustment

3) After selecting the desired setting, turn the large **MFD** knob to highlight the next value or press the small **MFD** knob to exit editing.

### Contrast Adjustment

1) While viewing the External Video page and the desired Video source, press the **Setup** soft key.

2) The Current value for Brightness will be selected. Turn the large **MFD** knob to highlight the Contrast value. Turn the small **MFD** knob to adjust the Contrast value.



CURRENT
BRIGHTNESS 60%
CONTRAST 45%
SATURATION 50%

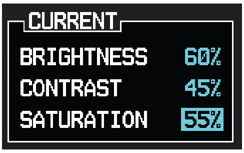
Figure 3-86 External Video Contrast Adjustment

3) After selecting the desired setting, turn the large **MFD** knob to highlight the next value or press the small **MFD** knob to exit editing.

### Saturation Adjustment

1) While viewing the External Video page and the desired Video source, press the **Setup** soft key.

2) The Current value for Brightness will be selected. Turn the large **MFD** knob to highlight the Saturation value. Turn the small **MFD** knob to adjust the Saturation value.


CURRENT

BRIGHTNESS 60%

CONTRAST 45%

SATURATION 55%

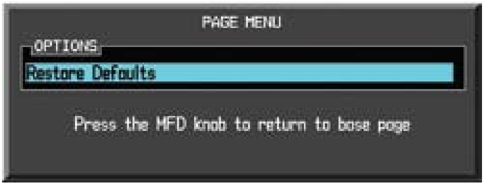
Figure 3-87  External Video Saturation Adjustment

3) After selecting the desired setting, press the small **MFD** knob to exit editing.

### 3.4.5.5 Restore Defaults

The Restore Defaults selection will return the Brightness, Contrast, and Saturation values to their original settings.

1) While viewing the External Video page, press the **MENU** key.



Press the MFD knob to return to base page

Figure 3-88  Restore Video Defaults Menu Selection

2) "Restore Defaults" will be highlighted. Press the **ENT** key.

## 3.4.6 Position Reporting (optional)

Position Reporting is a system which collects system variables and transmits them over the Iridium® Satellite Network at a given interval through the GSR 56.

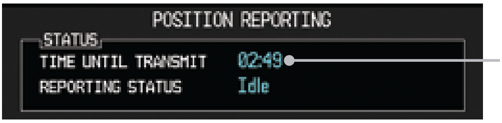
### 3.4.6.1 Status

The Status window shows the time until the next data transmission and the status of the reporting system.

***NOTE:** The GSR 56 does not report its serial number until 90 seconds after power up of the GDU. As a result, for that period, the product info for the GSR 56 will show "Waiting."*

**Time Until Transmit**

The Time Until Transmit field is a countdown timer that shows the time until the next data transmission. This field is blank when the aircraft is on the ground.



POSITION REPORTING

STATUS

TIME UNTIL TRANSMIT 02:49

REPORTING STATUS Idle

*Countdown Time Until Transmit*

Figure 3-89 Position Reporting Time Until Transmit

**Position Reporting Status**

Position Reporting will be enabled when the aircraft is in the air.

| Status | Description |
|---|---|
| Idle | The reporting system is not using the GSR 56 for reporting at this time. |
| Initializing | The GSR 56 and its driver are currently initializing. |
| Transferring | A position report is currently being transmitted. |
| Unavailable | The GSR 56 is currently not usable by the reporting system. |

Table 3-6 Position Reporting Status

### 3.4.6.2 Report Type

**Standard**

When the Standard reporting type is used, the Position Reporting Period may be set to Off or intervals of 2 to 60 minutes. The Automatic Position Reporting Period can be set to Off or periods of 2 minutes.

1) Turn the large **MFD** knob to reach the Aux page group. Turn the small **MFD** knob to reach the Position Reporting page.

2) Press the small **MFD** knob to select the Report Type.

3) Turn the small **MFD** knob to highlight Standard and then press the **ENT** key.

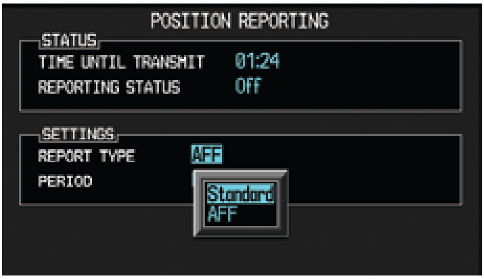

POSITION REPORTING
STATUS
TIME UNTIL TRANSMIT 01:24
REPORTING STATUS Off
SETTINGS
REPORT TYPE AFF
PERIOD

**Figure 3-90 Select Standard Reporting**

4) The Position Reporting Period type will now be selected. Turn the small **MFD** knob to highlight "Off" or "Automatic" and then press the **ENT** key. The Position Reporting Period interval will now be selected.

5) Turn the small **MFD** knob to select the reporting frequency.

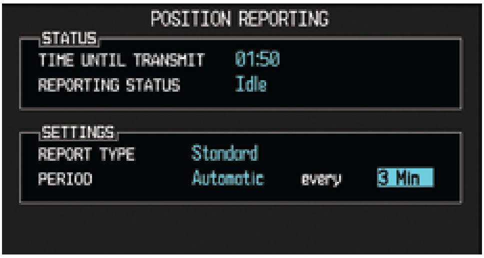
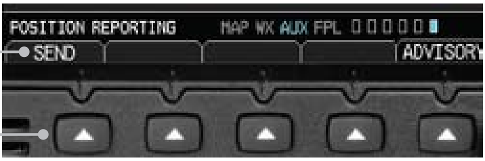

POSITION REPORTING
STATUS
TIME UNTIL TRANSMIT 01:50
REPORTING STATUS Idle
SETTINGS
REPORT TYPE Standard
PERIOD Automatic every 3 Min

**Figure 3-91 Select Standard Reporting Period Frequency**

6) Press the small **MFD** knob to exit editing.

7) With the Standard Reporting Type, the reporting period may be manually overridden by pressing the **SEND** soft key to send data.



***SEND** Soft Key Label*

***SEND** Soft Key*

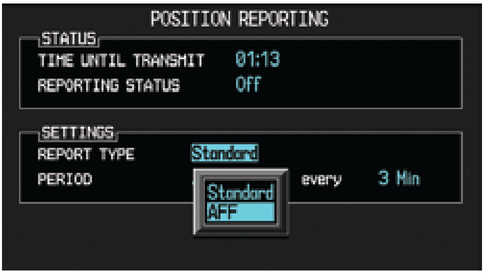
**Figure 3-92 Press SEND to Override the Reporting Period**

## Automatic Flight Following (AFF)

The G500H system, when combined with a GSR 56 Iridium datalink, can send position reports that contain data as required by the U.S. Government Automated Flight Following system. The GSR 56 account will allow configuration to forward data to the Automated Flight Following system.

1) While viewing the Position Reporting function, press the small **MFD** knob to select the Report Type.

2) Turn the small **MFD** knob to highlight "AFF" and then press the **ENT.**

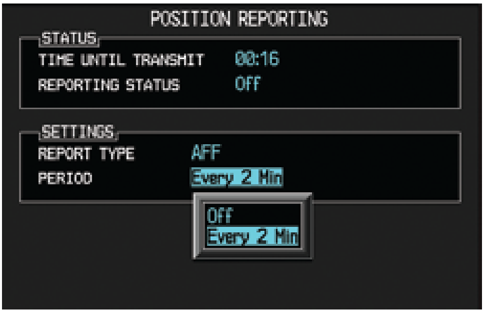

POSITION REPORTING

STATUS
TIME UNTIL TRANSMIT 01:13
REPORTING STATUS OFF

SETTINGS
REPORT TYPE Standard
PERIOD every 3 Min

Figure 3-93 Select Automatic Flight Following (AFF) Reporting Type

3) Turn the small **MFD** knob to select "OFF" or the default "Every 2 Min" value.


POSITION REPORTING

STATUS
TIME UNTIL TRANSMIT 00:16
REPORTING STATUS OFF

SETTINGS
REPORT TYPE AFF
PERIOD Every 2 Min

Figure 3-94 Select AFF Reporting Period Frequency

## 3.4.7 Iridium Phone Operation (Optional)

Optional satellite telephone operation is available through the Iridium® satellite system that is interfaced through the Garmin GSR 56.

⚠ ***CAUTION:** When interfaced with a GSR 56 Iridium transceiver only one SD card may be present in the GDU620 and it must be in the lower slot.*

### 3.4.7.1 Status

The Status section shows the Call Time, Phone Status, and Call Suppression selected. The Call Time value shows the length of the call time for the current call using the Iridium phone. Phone Status shows the current operating status of the Iridium phone.

| Status | Description |
|---|---|
| Idle | The Iridium phone is not using the GSR 56 for communicating at this time. |
| Initializing | The GSR 56 and its driver are currently initializing. |
| Connected | The GSR 56 is connected to the called number. |
| Connecting Call | The GSR 56 is in the process of connecting to the called number. |
| Changing Volume | The volume level on the GSR 56 is changing. |
| Busy | The phone is in use by another service and the call may not be made. |
| Dialing | The GSR 56 is dialing the called number. |
| Incoming Call | A call is being made to the GSR 56. |
| Hanging Up | The GSR 56 is disconnecting from the current call. |
| Unavailable | The GSR 56 is currently not usable by the Iridium phone system. |

**Table 3-7 Iridium Phone Status**

Call Suppression controls calling when use of the Iridium phone system is allowed.

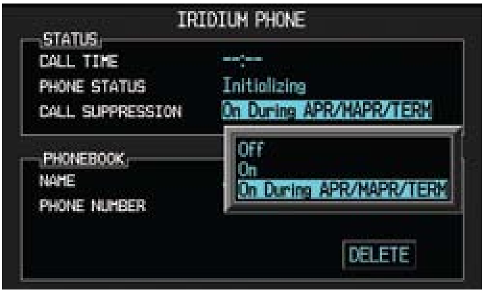
1) Turn the large **MFD** knob to reach the Aux page group. Turn the small **MFD** knob to reach the Iridium Phone page.

2) Press the small **MFD** knob to select the Call Suppression type.

| Status | Description |
|---|---|
| Off | Call Suppression is turned off. Calls may be transmitted and received through the Iridium phone. |
| On | Call Suppression is turned on. The incoming call pop-up will not be shown. The call may still be answered on the phone page. Outgoing calls are not affected. |
| On During APR/ MAPR/TERM | Call Suppression is turned on during Approach, Missed Approach, and Terminal operations. The incoming call pop-up will not be shown. The call may still be answered on the phone page. Outgoing calls are not affected. |

Table 3-8 Call Suppression

3) Turn the small **MFD** knob to highlight the desired selection.



IRIDIUM PHONE

STATUS
CALL TIME --:--
PHONE STATUS Initializing
CALL SUPPRESSION On During APR/MAPR/TERM

PHONEBOOK
NAME
PHONE NUMBER

Figure 3-95 Select Call Suppression

4) Press the **ENT** key. Press the small **MFD** knob again to cancel the selection cursor.

## 3.4.7.2 Managing the Phone Book

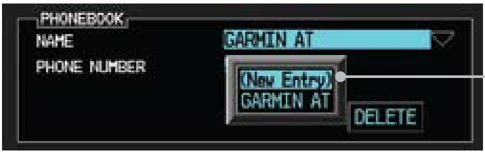
The Phone Book is stored on the SD card in the bottom slot. The Phone Book will only be available for use when the SD card is in the bottom slot. The Phone Book may hold up to 128 entries. A phone number may be entered and dialed without saving it to the Phone Book. Note that it is necessary to dial a “1,” the area code, and then the number.

### Creating Phone Number Names

1) Turn the large **MFD** knob to reach the Aux page group. Turn the small **MFD** knob to reach the Iridium Phone page.

2) Press the small **MFD** knob to activate the cursor and then turn the large **MFD** knob to highlight the Name item in the Phone Book. The Name field will blink.

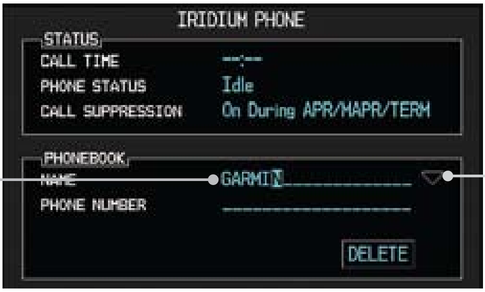
3) If items already exist in the catalog, turn the large **MFD** knob to select the Phone Book Catalog icon. Then, turn the small **MFD** knob to display the contents of the Phone Book Catalog and highlight the New Entry selection and press **ENT**.


PHONEBOOK
NAME GARMIN AT
PHONE NUMBER
(New Entry)
GARMIN AT
DELETE

*"New Entry" Selected for Phone Book Catalog Entry*

**Figure 3-96 "New Entry" Selected for Phone Book Catalog Entry**

4) Turn the small **MFD** knob to select the first character of the name and then turn the large **MFD** knob to select the next character. When the name is complete, press the **ENT** key.


IRIDIUM PHONE
STATUS
CALL TIME --:--
PHONE STATUS Idle
CALL SUPPRESSION On During APR/MAPR/TERM
PHONEBOOK
NAME GARMI_
PHONE NUMBER ----------------
DELETE

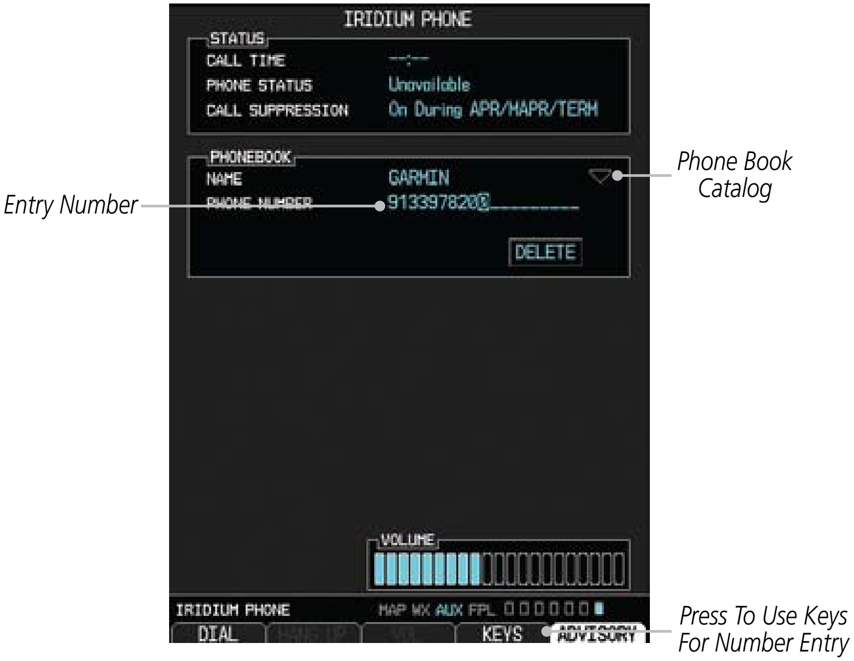
*Entry Name*

*Phone Book Catalog*

**Figure 3-97 Phone Book Name Entry**

### Creating Phone Numbers with the Rotary Knobs

1) Turn the large **MFD** knob to the Phone Number field. Turn the small **MFD** knob to select the first character of the number and then turn the large **MFD** knob to select the next character. When the number is complete, press the **ENT** key.



IRIDIUM PHONE

STATUS
CALL TIME --:--
PHONE STATUS Unavailable
CALL SUPPRESSION On During APR/MAPR/TERM

PHONEBOOK
NAME GARMIN
PHONE NUMBER 91339782000

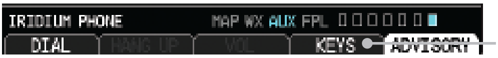
Entry Number
Phone Book Catalog
DELETE
VOLUME
IRIDIUM PHONE
MAP WX AUX FPL
DIAL
KEYS
ADVISORY
Press To Use Keys For Number Entry

Figure 3-98  Phone Book Number Entry

2) Press the small **MFD** knob again to cancel the selection cursor.

## Creating Phone Numbers with Soft Keys

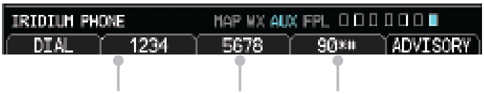
1) Numbers may also be entered using the soft keys at the bottom of the display. Press the **Keys** key at the bottom of the display.


IRIDIUM PHONE
MAP WX AUX FPL
DIAL
HANG UP
VOL
KEYS
ADVISORY

*Press To Use Keys For Number Entry*

Figure 3-99 Phone Book Number Entry Using Hot Keys

2) Press the key for the group of desired numbers.


IRIDIUM PHONE
MAP WX AUX FPL
DIAL
1234
5678
90*#
ADVISORY

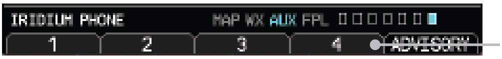
*Press for numbers 1, 2, 3, and 4*

*Press for numbers 5, 6, 7, and 8*

*Press for numbers 9 and 0, and symbols * and #*

Figure 3-100 Selecting Numeric Groups for Phone Book Number Entry

3) Press the key for the desired number. Repeat as necessary and then press **ENT** when the number is complete.

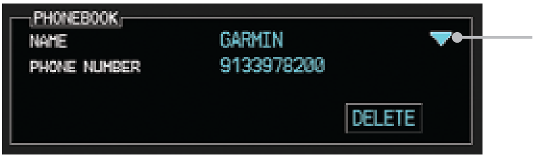

IRIDIUM PHONE
MAP WX AUX FPL
1
2
3
4
ADVISORY

*Press Keys For Number Entry*

Figure 3-101 Selecting Individual Numbers for Phone Book Number Entry

## Selecting a Phone Book Catalog Entry

1) Press the small **MFD** knob to activate the cursor and then turn the large **MFD** knob to select the Phone Book Catalog icon.

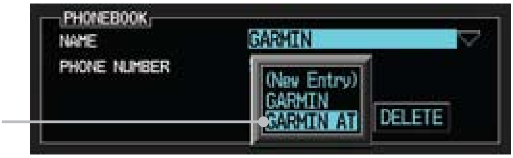

PHONEBOOK
DELETE

NAME GARMIN
PHONE NUMBER 9133978200

*Phone Book icon. When Highlighted, turn small MFD knob to view list.*

Figure 3-102 Selecting the Phone Book Catalog

2) Turn the small **MFD** knob to display the contents of the Phone Book Catalog and highlight the desired entry.


PHONEBOOK
NAME
PHONE NUMBER
GARMIN
(New Entry)
GARMIN
GARMIN AT
DELETE

*Selected Phone Book Catalog Entry*

Figure 3-103 Selected Phone Book Catalog Entry

3) Press the **ENT** key. Press the small **MFD** knob again to cancel the selection cursor.

### Deleting a Phone Book Catalog Entry

1) Press the small **MFD** knob to activate the cursor and then turn the large **MFD** knob to select the Phone Book Catalog icon.

2) Turn the small **MFD** knob to display the contents of the Phone Book Catalog and highlight the desired entry. Press **ENT** to select the catalog entry.

3) Turn the large **MFD** knob to highlight the **DELETE** key. Press **ENT** to delete the catalog entry. Press the small **MFD** knob again to cancel the selection cursor.

### Editing a Phone Book Catalog Entry

1) Press the small **MFD** knob to activate the cursor and then turn the large **MFD** knob to select the Phone Book Catalog icon.

2) Turn the small **MFD** knob to display the contents of the Phone Book Catalog and highlight the desired entry. Press **ENT** to select the catalog entry.

3) Use the large **MFD** and small **MFD** knobs to make changes to the name or number. Press **ENT** to save the changes. Press the small **MFD** knob again to cancel the selection cursor.

## 3.4.7.3 Phone Volume

Use the Phone Volume controls to adjust the loudness of the phone calls you hear. Volume controls will only be available when the Idle, Connected, or Changing Volume states are displayed.

### Adjusting the Phone Volume with the Rotary Knobs

1) While viewing the Iridium Phone page, press the small **MFD** knob and then turn the large **MFD** knob to select the Volume control. The volume bar graph will blink when selected.

2) Turn the small **MFD** knob to set the desired volume level.

3) Press the **ENT** key. Press the small **MFD** knob again to cancel the selection cursor.

### Adjusting the Phone Volume with the Soft Keys

1) While viewing the Iridium Phone page, press the **VOL** key at the bottom of the display.

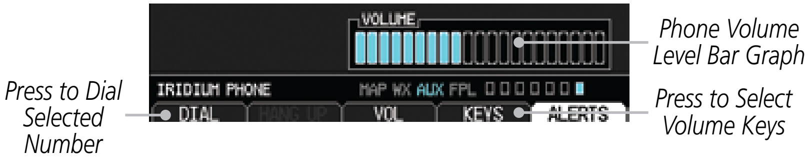

VOLUME
IRIDIUM PHONE
MAP WX AUX FPL
DIAL
HANG UP
VOL
KEYS
ALERTS
*Phone Volume Level Bar Graph*
*Press to Dial Selected Number*
*Press to Select Volume Keys*

**Figure 3-104  Select Soft Keys for Phone Volume Adjustment**

2) Press the **+** or **–** keys as necessary to adjust the phone volume.

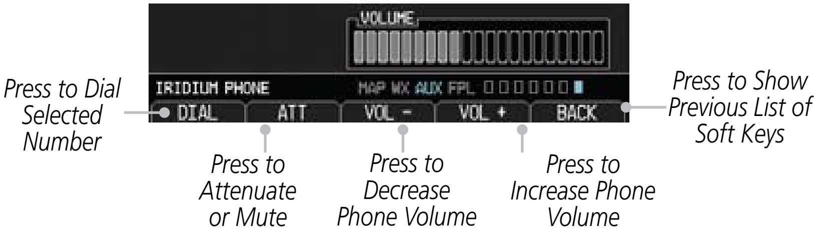

VOLUME
IRIDIUM PHONE
MAP WX AUX FPL
DIAL
ATT
VOL -
VOL +
BACK
*Press to Dial Selected Number*
*Press to Show Previous List of Soft Keys*
*Press to Attenuate or Mute*
*Press to Decrease Phone Volume*
*Press to Increase Phone Volume*

**Figure 3-105  Using Soft Keys for Phone Volume Adjustment**

3) Pressing the **ATT** soft key will attenuate the volume. Press the **ATT** soft key again to return to the previous volume.

### 3.4.7.4 Making a Phone Call

1) While viewing the Iridium Phone page, enter a phone number or select one from the Phone Book catalog.

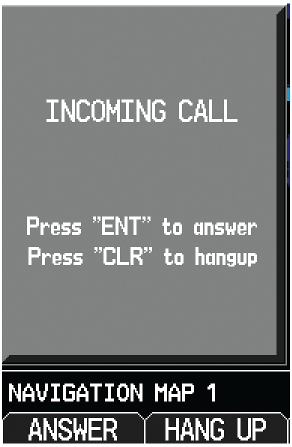
2) Press the **DIAL** key.

3) After completing the call, press the **HANG UP** key.

### 3.4.7.5 Answering a Phone Call

An incoming phone call will generate a pop-up announcing the call. When a call is accepted, the pop-up will show that the call is connected and the cumulative call time will be shown.

1. When an incoming call is available, press the **ENT** key or the **ANSWER** soft key to answer the call. Or, press the **CLR** key or the **HANG UP** soft key to not answer the call and hang up.



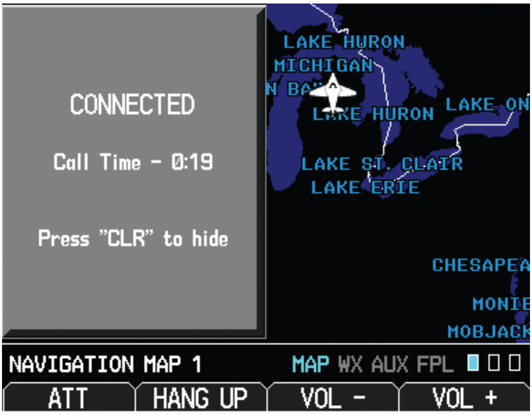
INCOMING CALL

Press "ENT" to answer
Press "CLR" to hangup

NAVIGATION MAP 1
ANSWER
HANG UP

**Figure 3-106 Incoming Call Pop-Up**

2. After a called is accepted and connected, the connection time will be shown on the pop-up. Press the **ATT** soft key to attenuate the call volume; pressing it again will return to normal volume. Press the **HANG UP** soft key to end the call. Press the **VOL -** or **VOL +** keys to adjust the call volume.



CONNECTED

Call Time - 0:19

Press "CLR" to hide

LAKE HURON
MICHIGAN
N BA
LAKE HURON
LAKE ON
LAKE ST. CLAIR
LAKE ERIE
CHESAPEA
MONIE
MOBJACK
NAVIGATION MAP 1
MAP WX AUX FPL
ATT
HANG UP
VOL -
VOL +

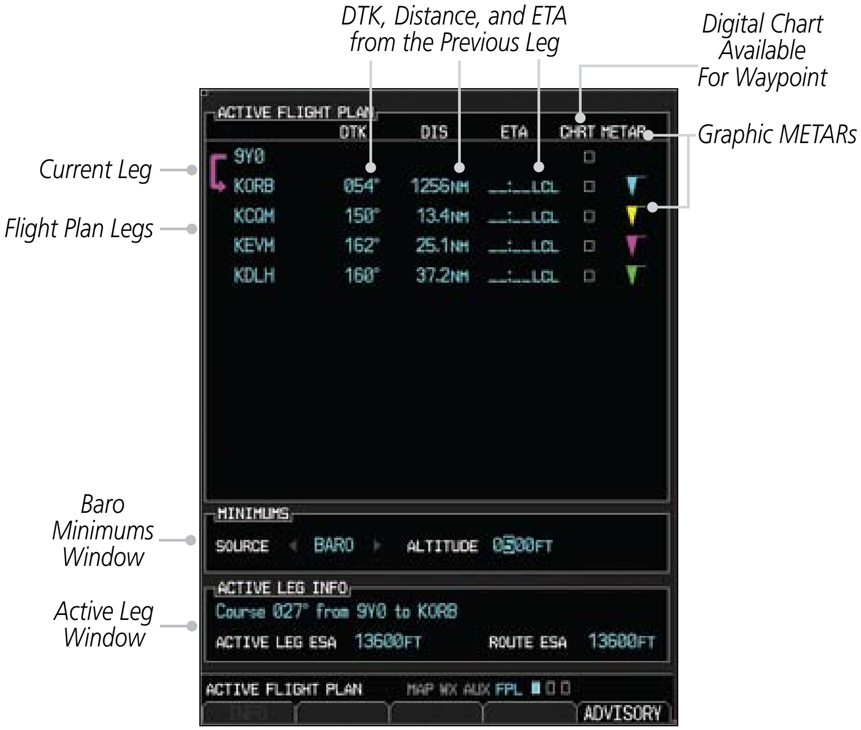
**Figure 3-107 Connected Call Pop-Up**

## 3.5 Flight Plan Pages

Use the Flight Plan page group to view details about your flight plan route. The Flight Plan Function shows the Current Flight Plan that is active in the navigation source displayed on the CDI.

### 3.5.1 Active Flight Plan Page

The Active Flight Plan box shows all of the legs of your flight plan with the current leg indicated in magenta. Listed are each leg with the Desired Track (DTK), Distance (DIS), and Estimated Time of Arrival (ETA) for the legs. METARs are shown for waypoints in the flight plan. In the Minimums window, the source and selected value are shown. See section 2.4.4 on Minimum Descent Altitude (MDA) or Decision Height (DH) in the PFD section and section 3.5.1.3 for more detail. In the Active Leg Info box in the lower part of the display, the Course with beginning and ending waypoints, Active Leg En Route Safe Altitude (ESA), and Route ESA are shown. METAR information is in the METAR section of Section 4 (Hazard Avoidance).


DTK, Distance, and ETA from the Previous Leg
Digital Chart Available For Waypoint
Graphic METARs
Current Leg
Flight Plan Legs
Baro Minimums Window
Active Leg Window
ACTIVE FLIGHT PLAN
MAP WX AUX FPL
ADVISORY

ACTIVE FLIGHT PLAN

| | DTK | DIS | ETA | CHRT | METAR |
|---|---|---|---|---|---|
| 9Y0 | | | | ☐ | |
| KORB | 054° | 1256NM | __:__LCL | ☐ | ▼ |
| KCQM | 150° | 13.4NM | __:__LCL | ☐ | ▼ |
| KEVM | 162° | 25.1NM | __:__LCL | ☐ | ▼ |
| KDLH | 160° | 37.2NM | __:__LCL | ☐ | ▼ |

MINIMUMS

SOURCE BARO ALTITUDE 0500FT

ACTIVE LEG INFO

Course 027° from 9Y0 to KORB

ACTIVE LEG ESA 13600FT ROUTE ESA 13600FT

Figure 3-108 Flight Page 1 (Active Flight Plan)

### 3.5.1.1 Active Flight Plan Detail

The active flight plan is shown on the first page of the Flight Plan page group. Further information may be available for each waypoint as shown by the **INFO** or **WX** soft keys. The **WX** soft key will only appear if a data link receiver is installed and there is a Weather subscription.

1) Press the **MFD** knob and then use the large and small **MFD** knobs to highlight waypoints in the flight plan.
2) Press the **INFO** soft key, if available, to view information about the highlighted waypoint.
3) Press the **WX** soft key, if available, to view XM weather information about the highlighted waypoint.
4) Press the small **MFD** knob to return to the Active Flight Plan page.

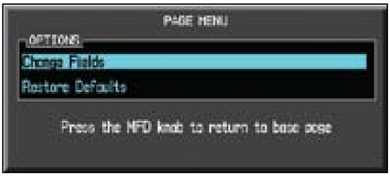
### 3.5.1.2 Active Flight Plan Options

The Active Flight Plan page provides information for the flight plan currently in use for navigation.

**To change data fields on the Active Flight Plan Page:**

1) While viewing the Active Flight Plan Page of the FPL page group, press **MENU** to display the Active Flight Plan Page Options window.

2. Turn the large **MFD** knob to highlight "Change Fields?" and then press **ENT**.



Press the MFD knob to return to base page

Figure 3-109  Active Flight Plan Page Menu Option Selection

3) Turn the large **MFD** knob to highlight the field you wish to change.

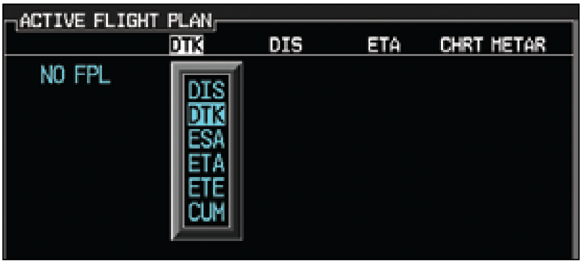


Figure 3-110  Active Flight Plan Page Menu Change Fields Option Selection

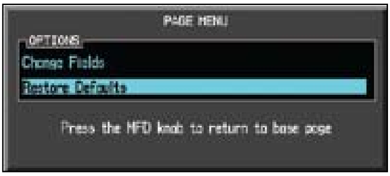
4) Turn the small **MFD** knob to select the desired data item and press **ENT**.

5) Press the small **MFD** knob to remove the cursor.

**To restore factory default settings for data fields on the Active Flight Plan Page:**

1) While viewing the Active Flight Plan Page of the FPL page group, press **MENU** to display the Active Flight Plan Page Options window.

2) Turn the large **MFD** knob to highlight "Restore Defaults?" and then press **ENT**.



Press the MFD knob to return to base page

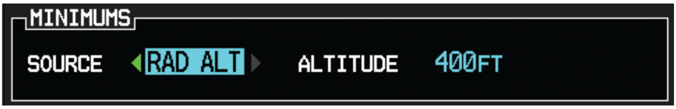
Figure 3-111 Active Flight Plan Page Menu Option Selection to Restore Defaults

### 3.5.1.3 Setting the Altitude Minimums Alerter

The Altitude Alerting function provides the pilot with visual and aural alerts (if interfaced to an audio panel) when approaching the Selected Altitude. Whenever the Selected Altitude is changed, the Altitude Alerter is reset. The Altitude Alerter is independent of any autopilot installed in the aircraft. See the Altitude Alerting section of the PFD section for more details.

1) While viewing the Charts Page of the FPL page group, press the **Menu** key. With the Set Minimums item highlighted, press **ENT.**

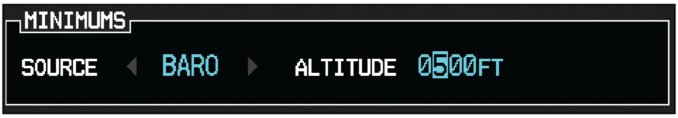
2) With the Minimums Source highlighted, select the Altitude Minimums Alerter source with small **MFD** knob.



SOURCE RAD ALT ALTITUDE 400FT

Figure 3-112 Minimums Source Selection

3) Turn the large **MFD** knob to highlight the Altitude Minimums value. Turn the large and small **MFD** knobs to change the Altitude Minimums value.



SOURCE BARO ALTITUDE 0500FT

Figure 3-113 Minimums Altitude Selection

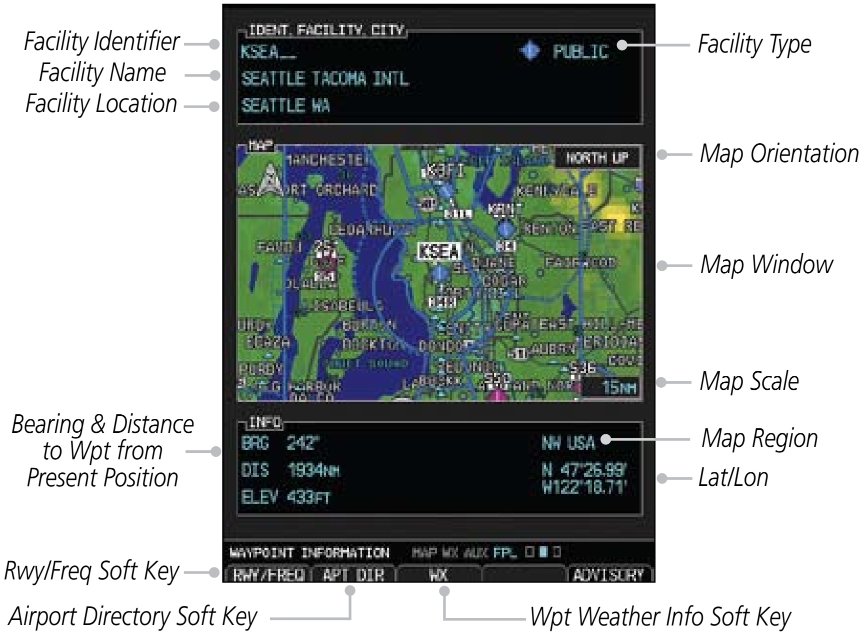
4) Press **ENT** to activate the selected value.

In dual installations, the minimums alerting altitude value may be set from either GDU 620 and will be synchronized on both units.

***NOTE:** If you highlight the Minimums Altitude field on the FPL page and press the CLR key, it will turn the minimums functionality off.*

## 3.5.2 Waypoint Information Page

The Waypoint Information page provides details about a particular waypoint. You can show a waypoint by selecting it by Ident, Facility Name, or by City. The Map window shows the selected waypoint in the center of the map. The Range keys zoom in and out on the map. The Info window at the bottom of the display shows the Bearing and Distance from your present position to the selected waypoint as well as its region and Lat/Lon coordinates. The map window is set up with the same parameters as were selected for Navigation Map Page 1.


Facility Identifier
Facility Name
Facility Location
Facility Type
Map Orientation
Map Window
Map Scale
Map Region
Lat/Lon
Bearing & Distance to Wpt from Present Position
Rwy/Freq Soft Key
Airport Directory Soft Key
Wpt Weather Info Soft Key
MAP
NORTH UP
KSEA
15NM
WAYPOINT INFORMATION
MAP WX AUX FPL
RWY/FREQ
APT DIR
WX
ADVISORY

IDENT, FACILITY, CITY
KSEA_ PUBLIC
SEATTLE TACOMA INTL
SEATTLE WA

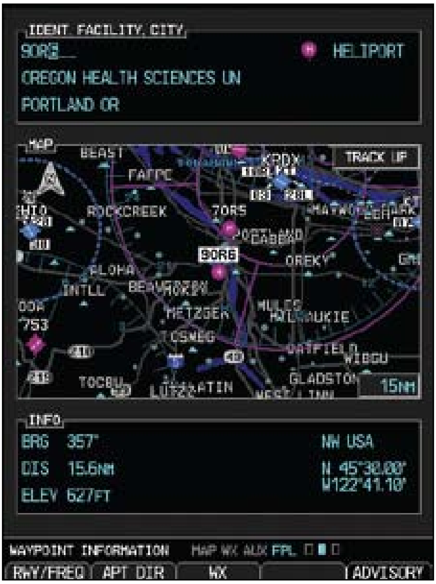
INFO
BRG 242° NW USA
DIS 1934NM N 47°26.99'
ELEV 433FT W122°18.71'

Figure 3-114 Flight Plan Waypoint Information Page

***NOTE:** Waypoint information is shown on the second page of the Flight Plan page group.*

### 3.5.2.1 Selecting a Waypoint

1) While viewing the Waypoint Information page of the FPL page group, press the **MFD** knob and use the large and small **MFD** knobs to move the cursor to select the identifier for the waypoint.



IDENT, FACILITY, CITY
9OR8 HELIPORT
OREGON HEALTH SCIENCES UN
PORTLAND OR

INFO
BRG 357°
DIS 15.6NM
ELEV 627FT
NW USA
N 45°30.00'
W122°41.10'

MAP
TRACK UP
BEAST
FARPC
KPDX
ROCKCREEK
7OR5
PORTLAND
9OR8
OREKY
ALOHA
INTLL
BEAVERTON
METZGER
MILWAUKIE
CSMEG
HATFIELD
GLADSTON
TOCBU
LUTZ
15NM
WAYPOINT INFORMATION
MAP WX AUX FPL
RWY/FREQ
APT DIR
WX
ADVISORY

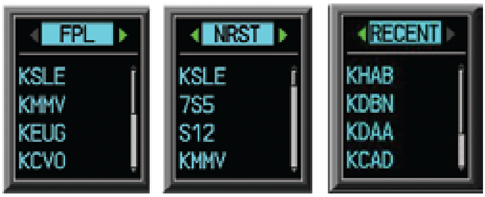
Figure 3-115 Waypoint Selection

2) Press the **ENT** key to select the waypoint.

OR

1) While viewing the Waypoint Information page of the FPL page group, press the small **MFD** knob.

2) Turn the small **MFD** knob counterclockwise.

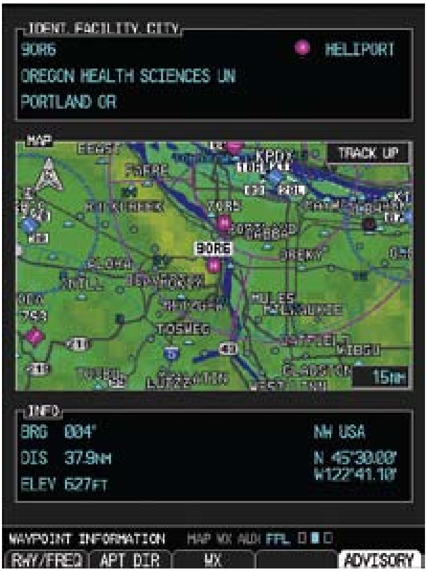


FPL
KSLE
KMMV
KEUG
KCVO
NRST
KSLE
7S5
S12
KMMV
RECENT
KHAB
KDBN
KDAA
KCAD

Figure 3-116 Waypoint Category Selection

3) Turn the small **MFD** knob to show FPL, NRST, or RECENT.

4) Turn the large **MFD** knob to highlight the desired airport, and then press **ENT**.



IDENT, FACILITY, CITY
90R6 HELIPORT
OREGON HEALTH SCIENCES UN
PORTLAND OR

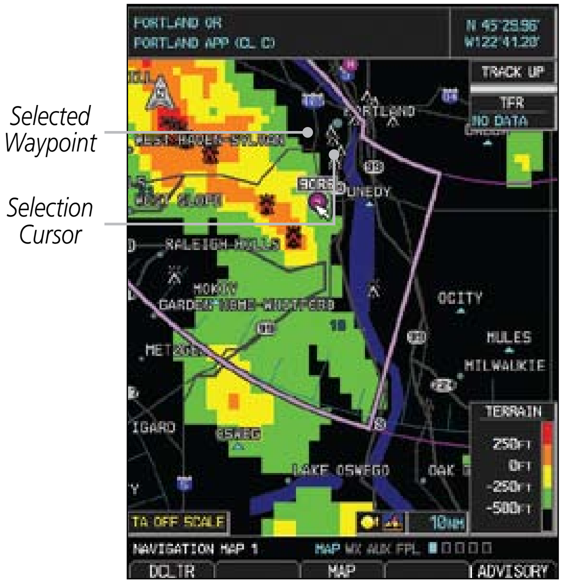
INFO
BRG 004° NW USA
DIS 37.9NM N 45°30.00'
ELEV 627FT W122°41.10'

MAP
TRACK UP
KPDX
90R6
15NM
WAYPOINT INFORMATION
MAP WX AUX FPL
RWY/FREQ
APT DIR
WX
ADVISORY

Figure 3-117  Heliport Waypoint Information Page

OR

1) While viewing the Nav Map 1 or 2 pages of the MAP page group, press the **MFD** knob and use the large and small **MFD** knobs to move the cursor to highlight the identifier for a waypoint.



PORTLAND OR N 45°29.56'
PORTLAND APP (CL C) W122°41.20'

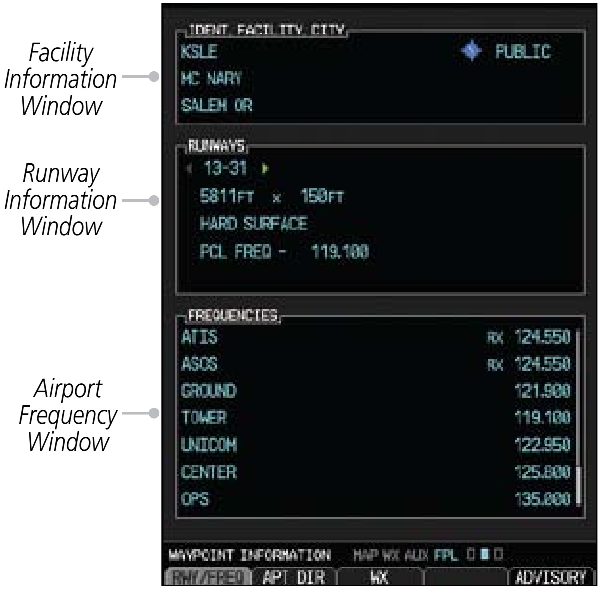
Selected Waypoint
Selection Cursor
TRACK UP
TFR
NO DATA
PORTLAND
90R6
OCITY
MILWAUKIE
LAKE OSWEGO
TERRAIN
250FT
0FT
-250FT
-500FT
TA OFF SCALE
10NM
NAVIGATION MAP 1
MAP WX AUX FPL
DCLTR
MAP
ADVISORY

Figure 3-118  Waypoint Selection

2) Press the **ENT** key to select the waypoint.

### 3.5.2.2 Waypoint Information Detail

More detailed information about a selected waypoint is available by pressing the **RWY/FREQ** or **APT DIR** soft keys on the Waypoint Information page. The current destination waypoint is the default item shown. You may select a different Ident, Facility, or Location. In the Runway window, you may view information about the runways available if a highlighted arrow is shown. In the Frequency window, a scroll bar is shown on the right side of the window when more frequencies are available.


Facility Information Window
Runway Information Window
Airport Frequency Window
IDENT, FACILITY, CITY
RUNWAYS
FREQUENCIES
WAYPOINT INFORMATION
MAP WX AUX FPL
RWY/FREQ
APT DIR
WX
ADVISORY

KSLE PUBLIC
MC NARY
SALEM OR

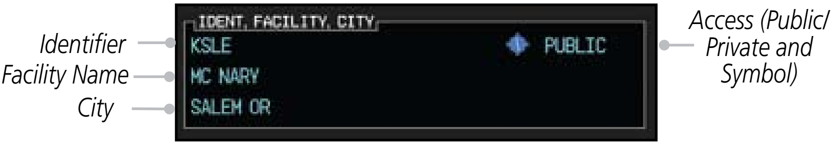
13-31
5811FT x 150FT
HARD SURFACE
PCL FREQ - 119.100

| | | |
|---|---|---|
| ATIS | RX | 124.550 |
| ASOS | RX | 124.550 |
| GROUND | | 121.900 |
| TOWER | | 119.100 |
| UNICOM | | 122.950 |
| CENTER | | 125.800 |
| OPS | | 135.000 |

Figure 3-119 Flight Plan Waypoint Info Detail

### Ident/Facility/City Selection

The current destination Identifier, Facility Type with icon, Facility Name, and City (location) are shown in the top window of the Flight Plan mode Waypoint Information page. The default is the Nearest airport if there is no active flight plan. New Identifiers may also be selected as shown in section 3.5.3.3.



KSLE PUBLIC
MC NARY
SALEM OR

**Figure 3-120 Flight Plan Ident/Facility/City Detail**

1) While viewing the Waypoint Information page of the FPL page group, press the **RWY/FREQ**, **APT DIR**, or **WX** soft keys to view information about the waypoint.

2) The current destination Ident, Facility, and City is shown, but may be changed to find information about other choices. Press the small **MFD** knob to activate the cursor. These fields may not be selected if the RWY, APT DIR, or WX pages are selected. If viewing those pages, press the soft key for that page again to return to the Waypoint Information page.

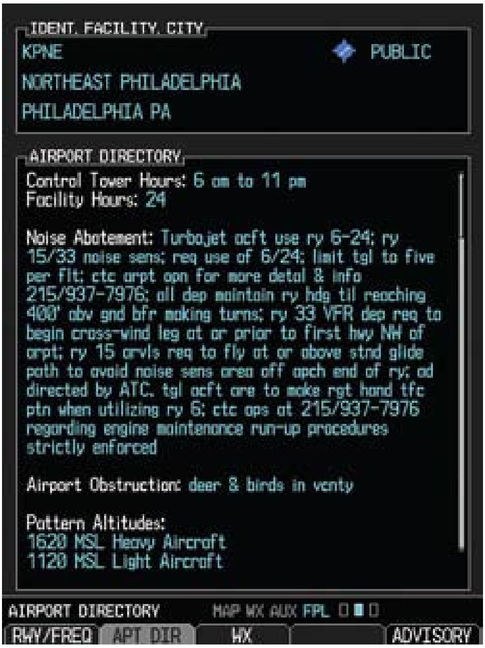
3) Use the large **MFD** knob to highlight the field you wish to change and use the small **MFD** knob to change the value.

4) Press the **ENT** key to save the selected value or press the small **MFD** knob to cancel editing.

### 3.5.2.3 Airport Directory

The Airport Directory lists extensive information about the selected airport and the surrounding area. The **RWY/FREQ** and **APT DIR** soft keys are greyed out and not functional unless the selected waypoint is an airport or heliport.

> ***NOTE:*** *Airport Directory information comes from a database provided by various 3rd parties. Refer to the Database information in the AUX – SYSTEM STATUS page for details on the installed Airport Directory database.*



KPNE PUBLIC
NORTHEAST PHILADELPHIA
PHILADELPHIA PA

Control Tower Hours: 6 am to 11 pm
Facility Hours: 24

Noise Abatement: Turbojet acft use ry 6-24; ry 15/33 noise sens; req use of 6/24; limit tgl to five per flt; ctc arpt opn for more detal & info 215/937-7976; all dep maintain ry hdg til reaching 400' abv gnd bfr making turns; ry 33 VFR dep req to begin cross-wind leg at or prior to first hwy NW of arpt; ry 15 arvls req to fly at or above stnd glide path to avoid noise sens area off apch end of ry; ad directed by ATC. tgl acft are to make rgt hand tfc ptn when utilizing ry 6; ctc ops at 215/937-7976 regarding engine maintenance run-up procedures strictly enforced

Airport Obstruction: deer & birds in vcnty

Pattern Altitudes:
1620 MSL Heavy Aircraft
1120 MSL Light Aircraft

Figure 3-121 Airport Directory Information

1) While viewing the Waypoint Information page of the FPL page group, press the **APT DIR** soft key to view more information about the waypoint.

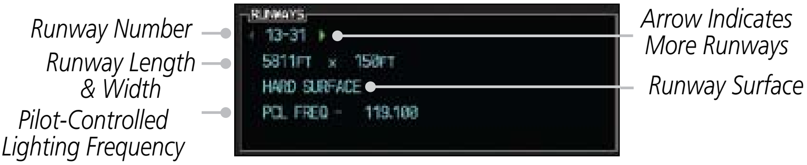
2) Press the small **MFD** knob to activate the cursor.

3) Use the small or large **MFD** knob to scroll through the information.

4) Press the small **MFD** knob to deactivate the cursor. Press the **APT DIR** soft key again to return to the Waypoint Information page.

## Runway Information Selection

Information is provided for each runway showing the following detail: runway number, runway length, surface type, and the frequency for Pilot-Controlled Lighting (PCL).


RUNWAYS
13-31
5811FT x 150FT
HARD SURFACE
PCL FREQ - 119.100

*Runway Number*
*Runway Length & Width*
*Pilot-Controlled Lighting Frequency*
*Arrow Indicates More Runways*
*Runway Surface*

**Figure 3-122 Waypoint Runway Information**

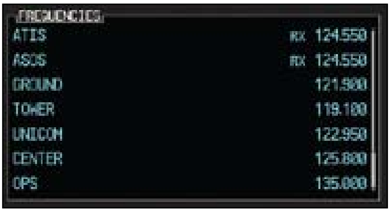
1) While viewing the Waypoint Information page of the FPL page group, press the **RWY/FREQ** soft key to view information about the waypoint and press the small **MFD** knob to activate the cursor.

2) Use the large **MFD** knob to highlight the Runway and use the small **MFD** knob to display the available runways.

3) Press the small **MFD** knob to cancel editing.

## Facility Frequency Selection

The Frequency window at the bottom of the Waypoint Information page shows the frequencies available for the selected waypoint. A scroll bar is shown on the right side of the Frequency window if more frequencies are available.


FREQUENCIES

| | | |
|---|---|---|
| ATIS | RX | 124.550 |
| ASOS | RX | 124.550 |
| GROUND | | 121.900 |
| TOWER | | 119.100 |
| UNICOM | | 122.950 |
| CENTER | | 125.800 |
| OPS | | 135.000 |

**Figure 3-123 Waypoint Frequency Information**

1) While viewing the Waypoint Information page of the FPL page group, press the **RWY/FREQ** soft key to view information about the waypoint and then press the small **MFD** knob to activate the cursor.

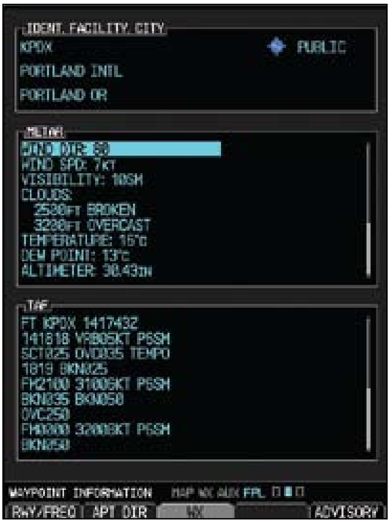
2) Turn the small **MFD** knob to scroll through the available frequencies.

3) Press the small **MFD** knob to exit.

### 3.5.2.4 Waypoint Weather Information (Optional)

The Weather information function is available if a data link receiver is installed, a weather subscription is current, and weather information is available for the selected waypoint. METAR and TAF text are displayed on the Waypoint Weather Information Page. Pressing the **WX** soft key will show the weather information page. METAR data is displayed first, then TAF information is displayed.

TAF (Terminal Aerodrome Forecast) is the standard format for 24-hour weather forecasts. A TAF typically forecasts significant weather changes, temporary changes, probable changes, and expected changes in weather conditions.



```
IDENT, FACILITY, CITY
KPDX                         PUBLIC
PORTLAND INTL
PORTLAND OR

METAR
WIND DIR: 80
WIND SPD: 7KT
VISIBILITY: 10SM
CLOUDS:
  2500FT BROKEN
  3200FT OVERCAST
TEMPERATURE: 15°C
DEW POINT: 13°C
ALTIMETER: 30.43IN

TAF
FT KPDX 141743Z
141818 VRB05KT P6SM
SCT025 OVC035 TEMPO
1819 BKN025
FM2100 31006KT P6SM
BKN035 BKN050
OVC250
FM0000 32008KT P6SM
BKN050
```

Figure 3-124 Waypoint Weather Information (Textual METARs and TAFs)

1) While viewing the Waypoint Information page of the FPL page group, press the **WX** soft key to view weather information for the waypoint.

2) Use the small **MFD** knob or the large **MFD** knob to scroll through the available information.

3) Press the small **MFD** knob to return to the main Flight Plan page.

### 3.5.3 Charts Page (Optional)

Charts, when installed, are available in the Flight Plan page group. ChartView is an optional feature that requires enablement by a Garmin dealer.

1) Turn the large **MFD** knob to the Flight Plan page group.

2) Turn the small **MFD** knob to the Charts page.

***NOTE:*** *There are two options for chart services: FliteCharts or ChartView. FliteCharts displays charts that are FAA-published. ChartView displays charts published by Jeppesen. ChartView charts are geo-referenced, which allows a pink ownship icon to be overlayed on the chart indicating the aircraft location.*

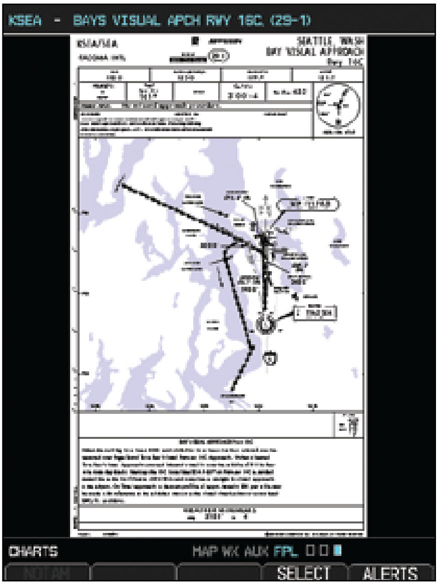


Figure 3-125 Flight Page 3 (Charts)

### 3.5.3.1 Viewing Charts

The chart for the selected destination airport or approach is automatically loaded. With ChartView only and when available for the selected chart, more detail is available.

1) While viewing the Charts page of the FPL page group, press the **RNG** (Range) ▲ ▼ keys to zoom in and out.

2) After zooming in, you may only see part of the chart. Press the **Small** MFD knob to enter Pan mode and activate scroll bars on the edges of the chart. Turn the large and small **MFD** knobs to move around the chart.

***NOTE:** When Panning mode is active, scroll bars will be shown on the right side and bottom of the display.*

3) Press the small **MFD** knob to cancel the scroll bars and exit panning.

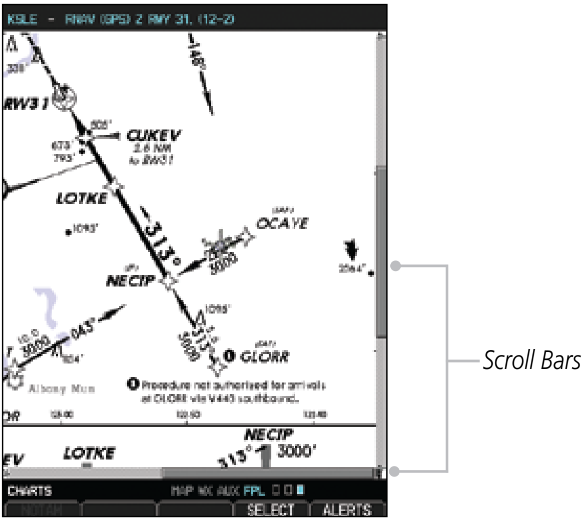

KSLE - RNAV (GPS) Z RWY 31, (12-2)
RW31
CUKEV
3.6 NM to RW31
LOTKE
313°
OCAYE
NECIP
3000
043°
GLORR
Albany Mun
Procedure not authorized for arrivals at GLORR via V448 southbound.
NECIP
LOTKE
313°
3000'
CHARTS
MAP WX AUX FPL
NOTAM
SELECT
ALERTS
Scroll Bars

**Figure 3-126 Chart Scroll Bars (Charts)**

### 3.5.3.2 Selecting a New Chart by Airport

A chart for a different airport may be chosen by selecting the identifier for the desired airport.

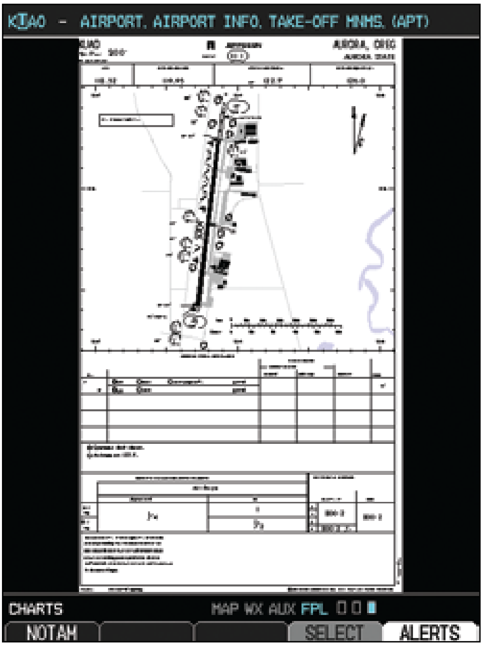


Figure 3-127 Airport Identifier Selection

1) While viewing the Charts page of the FPL page group, press the **SELECT** soft key to change the airport.

2) Use the large **MFD** knob to move the cursor to highlight a character.

3) Use the small **MFD** knob to change the character.

4) Press **ENT** to accept the selected airport.

5) Use the large and small **MFD** knobs to select the desired chart.

6) Press **ENT** to display the desired chart.

7) With ChartView only and when available for the selected chart, more detail is available. Press the **Detail** key to view detailed views of the current chart. Press the **Header**, **Plan**, **Profile**, or **Minimums** keys to view detailed sections for the chart for those topics.

### 3.5.3.3 Selecting a New Chart by FPL, NRST, or RECENT

You may select other charts to display based on your flight plan (FPL), charts of the nearest airport (NRST), or your most recently selected airport (RECENT).

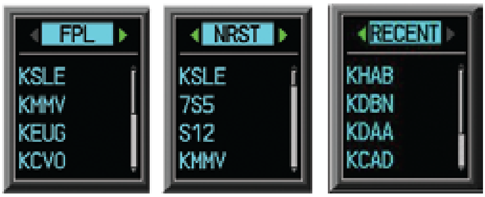


**Figure 3-128 Chart Category Selection**

1) While viewing the Charts page of the FPL page group, press the **SELECT** soft key.
2) Turn the small **MFD** knob counterclockwise.
3) Turn the small **MFD** knob to show FPL, NRST, or RECENT.
4) Turn the large **MFD** knob to highlight the desired airport, and then press **ENT**.

### 3.5.3.4 Change Day/Night View

The Chart pages can be displayed on a white or black background for day or night viewing. The Day View offers a better presentation in a bright environment. The Night View gives a better presentation for viewing in a dark environment. The “auto” setting allows the user to set a percentage. This percentage is the backlight value where the charts page will automatically switch between day and night mode. If you set the unit to AUTO 10%, then if the backlight is below 10% it will be in night mode, if above 10% it will be in day mode.

1) While viewing the Charts page of the FPL page group, turn the small **MFD** knob to reach the Charts page.
2) Press **MENU** to display the Options menu.
3) Press **ENT** to display the Chart Setup menu. The Color Scheme option will be highlighted.
4) Turn the small **MFD** knob to select Day - Auto - Night.
5) Press the small **MFD** knob or the **ENT** key to save the selected setting and return to the Charts page.
6) If “Auto” is selected, turn the large **MFD** knob to highlight the Display Level Brightness value. Turn the small **MFD** knob to change the value and then the **ENT** key to save the selected value.

*This page intentionally left blank*

# 4 HAZARD AVOIDANCE

The G500H hazard avoidance features are designed to provide advisory information of potential hazards to flight safety associated with weather, terrain, and air traffic.

This section is divided into the following groups:

**Terrain Avoidance**

- Terrain Proximity
- Garmin Terrain-HSVT™ (Optional)

**Traffic Avoidance**

- Traffic Advisory System (Optional)
- Traffic Information Service (TIS)
  (Optional - GTX 33/330 Transponder required)

**Weather**

- GDL 69/69A XM® Satellite Weather (Optional)
- GFDS Weather with the Iridium® satellite system through GSR 56 (Optional)

## 4.1 Terrain Configurations

During power-up of the G500H, the terrain/obstacle database versions are displayed along with a disclaimer. At the same time, the Terrain system self-test begins. A failure message is issued if the terrain test fails.

Garmin provides the following terrain awareness solutions within the G500H environment:

- Terrain-HSVT - Refers to a subset of H-TAWS that meets the terrain alerting requirements outlined in Section 7.b of AC 23-26. Terrain-HSVT is a subset of H-TAWS that provides a FLTA functionality, including visual alerting and aural alerting. Terrain-HSVT is provided with the Synthetic Vision functionality and not marketed separately.

***NOTE: Terrain-HSVT is not a fully functional HSVT and does not meet the TAWS TSO-C194 requirements.***

- Terrain-Proximity - Refers to the display of the relative terrain elevations on the moving map. No aural alerts of any type are provided by a Terrain-Proximity configuration.

| Terrain Configurations | PFD/MFD Visual Annunciations | MFD Pop-up Alert | Aural Alerting |
|---|---|---|---|
| G500H Terrain Proximity | None | None | None |
| G500H Terrain Proximity w/ External H-TAWS Unit Installed (400W/500W-series) | PFD annunciations are generated from the External H-TAWS Unit.<br>No MFD Annunciations. | None | Aural alerts are generated from the external H-TAWS unit. |
| G500H w/Terrain-HSVT | Annunciations generated from the G500H. | Generated from the G500H. | Generated from the G500H. |
| G500H w/ Terrain-HSVT and External H-TAWS Unit Installed (400W/500W-series) | PFD annunciations are generated from the External H-TAWS Unit.<br>MFD Annunciations are generated from the G500H. | Generated from the G500H. | Aural alerts are generated from the external H-TAWS unit. |

**Table 4-1 G500H Terrain Annunciations**

***NOTE:*** *Obstacles are removed from the Terrain pages at ranges greater than 10 NM.*

Each of the terrain awareness configurations are detailed in the following sub-sections.

## 4.2 Terrain Scale

The Terrain Scale option in the Map page group selects whether the Terrain Scale is shown on the Navigation Map. The Terrain scale will be located on the right side of the display.

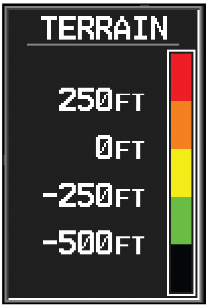


Figure 4-1 Terrain Scale

| Color | Description |
|---|---|
| Black | Terrain is more than 500 ft below the aircraft. |
| Green | Terrain is between 250 ft below and 500 ft below the aircraft. |
| Yellow | Terrain is between 250 ft below and 0 ft above the aircraft. |
| Orange | Terrain is between 0 ft above and 250 ft above the aircraft. |
| Red | Terrain is more than 500 ft above the aircraft. |

Table 4-2 Terrain Scale Color Codes

## 4.3 Terrain Proximity

Garmin Terrain Proximity is a non-TSO-C194-certified terrain awareness system provided as a standard feature of GDU 620 to increase situational awareness and help reduce controlled flight into terrain (CFIT). Terrain may be displayed on the Map page group Navigation Map and Terrain pages.

Terrain Proximity uses information provided from the GPS receiver to provide a horizontal position and altitude. GPS altitude is derived from satellite measurements. GPS altitude is converted to a Mean Sea Level (MSL)-based altitude (GPS-MSL altitude) and is used to determine Terrain alerts. GPS-MSL altitude accuracy is affected by factors such as satellite geometry, but it is not subject to variations in pressure and temperature that normally affect pressure altitude devices. GPS-MSL altitude does not require local altimeter settings to determine MSL altitude. Therefore, GPS altitude provides a highly accurate and reliable MSL altitude source to calculate terrain and obstacle alerts.

Terrain Proximity utilizes terrain and obstacle databases that are referenced to mean sea level (MSL). Using the GPS position and GPS-MSL altitude, Terrain Proximity displays a 2-D picture of the surrounding terrain and obstacles relative to the position and altitude of the aircraft. In this manner, Terrain Proximity provides awareness of surrounding terrain conditions.

Terrain-Proximity - is a non-TSO-C194 certified terrain awareness system. Do not confuse Terrain Proximity with H-TAWS. H-TAWS is TSO-C194 certified and Terrain Proximity is not. Terrain Proximity does not provide warning annunciations or voice alerts, it only provides color indications on map displays when terrain and obstacles are within a certain altitude threshold from the aircraft.

Terrain-HSVT is a non-TSO-C194 certified terrain awareness system. Do not confuse Terrain-HSVT with H-TAWS. H-TAWS is TSO-C194 certified and Terrain-HSVT is not. Terrain-HSVT provides terrain alerting functionality, including visual alerting and aural alerting. Terrain-HSVT is provided with the Synthetic Vision functionality and not marketed separately. Garmin Terrain-HSVT is available in GDU 620 v4.00 or later, when configured for Rotary Wing and Synthetic Vision enabled.

Terrain Proximity requires the following to operate properly:

- The system must have a valid 3-D GPS position solution.
- The system must have a valid terrain/obstacle database.

## 4.3.1 Displaying Terrain Proximity

The Terrain Proximity page is in the Map page group. Terrain is also selectable on the Navigation Map pages.

### 4.3.1.1 Terrain Proximity Page Display on the Terrain Page

1) Turn the large **MFD** knob to the MAP page group.

2) Turn the small **MFD** knob to the Terrain page.

3) Press the **VIEW** soft key to show the **360** and **ARC** soft keys.

1) Turn the Large **MFD** knob to the MAP page group.

2) Turn the small **MFD** knob to the Terrain page.

3) Press the **VIEW** soft key to show the 360 and ARC soft keys.

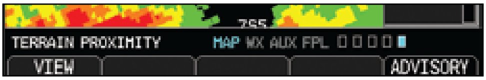

755
TERRAIN PROXIMITY
MAP WX AUX FPL
VIEW
ADVISORY

Figure 4-2 Terrain Page with VIEW Soft Key to reach 360° and 120° Arc Soft Keys

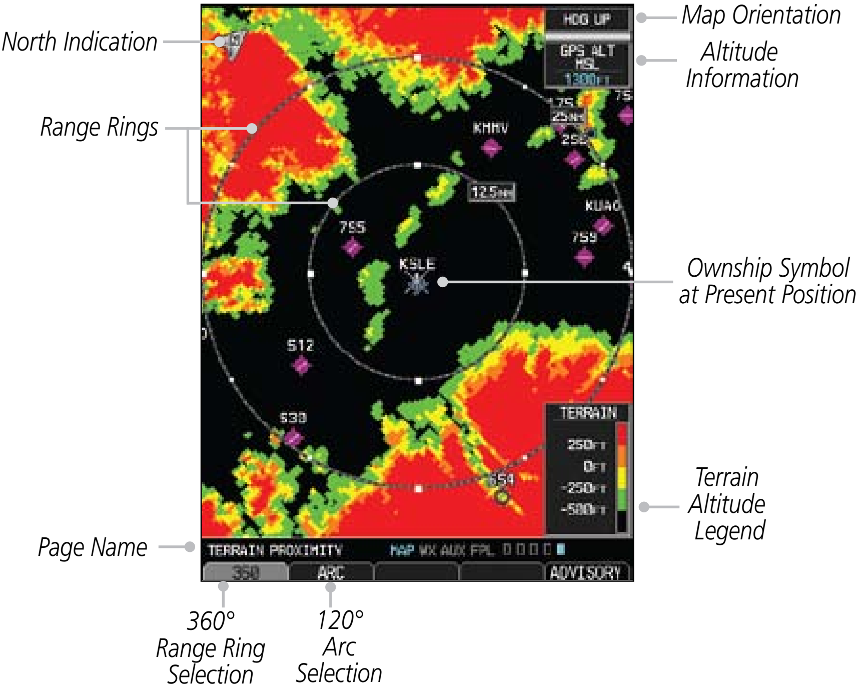

North Indication
Range Rings
Page Name
Map Orientation
Altitude Information
Ownship Symbol at Present Position
Terrain Altitude Legend
360° Range Ring Selection
120° Arc Selection
HDG UP
GPS ALT MSL
1300FT
KHMV
125NM
25NM
KUAO
755
759
KSLE
512
530
654
TERRAIN
250FT
0FT
-250FT
-500FT
TERRAIN PROXIMITY
MAP WX AUX FPL
360
ARC
ADVISORY

Figure 4-3 Terrain Page with Aviation Data Displayed and 360° View

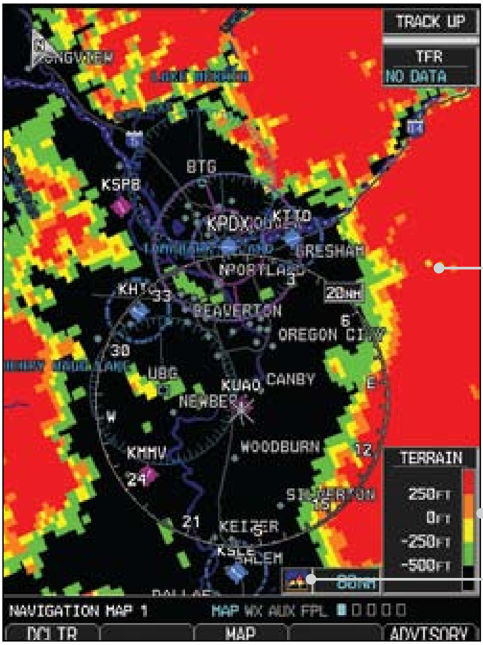

TRACK UP
TFR
NO DATA
KSPB
BTG
KPDX
KTTD
GRESHAM
NPORTLAND
KHIO
20NM
BEAVERTON
OREGON CITY
UBG
KUAO
CANBY
NEWBERG
KMMV
WOODBURN
SILVERTON
KEIZER
KSLE
SALEM
TERRAIN
250FT
0FT
-250FT
-500FT
80NM
NAVIGATION MAP 1
MAP WX AUX FPL
DCLTR
MAP
ADVTSRY
Terrain Overlay
Terrain Scale
Terrain Data Icon

Figure 4-4 Terrain on Navigation Map Page

### 4.3.1.2 Terrain Proximity Page Display on a Navigation Map Page

1) Turn the large **MFD** knob to the MAP page group.

2) On Navigation Map page 1 or 2, press the **MAP** soft key to show the **TERRAIN** soft key.

3) Press the **TERRAIN** soft key to overlay terrain on the Navigation Map.

### 4.3.1.3 Terrain Proximity Page 120° Arc or 360° Rings

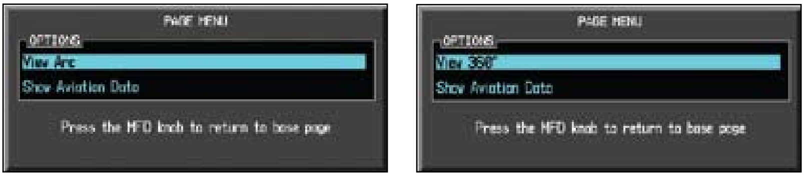
Select the 120º Arc or 360º rings overlay for the Terrain page with either the 360/Arc soft keys or from the Page Menu.

1) Press the **VIEW** soft key to show the 360 and ARC soft keys.

2) Press the **360** or **Arc** soft key.

OR

Press **MENU** and the with the View Arc or View 360° selection highlighted press **ENT**.



PAGE MENU
OPTIONS
View Arc
Show Aviation Data
Press the MFD knob to return to base page

PAGE MENU
OPTIONS
View 360°
Show Aviation Data
Press the MFD knob to return to base page

Figure 4-5  Terrain Page Menu Viewing Selections

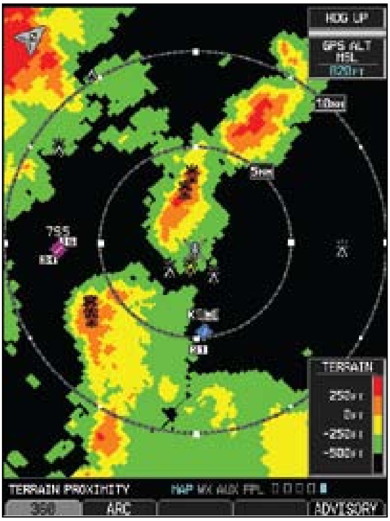

HDG UP
GPS ALT
MSL
820FT
10NM
5NM
7S5
KSWE
TERRAIN
250FT
0FT
-250FT
-500FT
TERRAIN PROXIMITY
MAP WX AUX FPL
360
ARC
ADVISORY

Figure 4-6  Terrain Page with 360° Rings

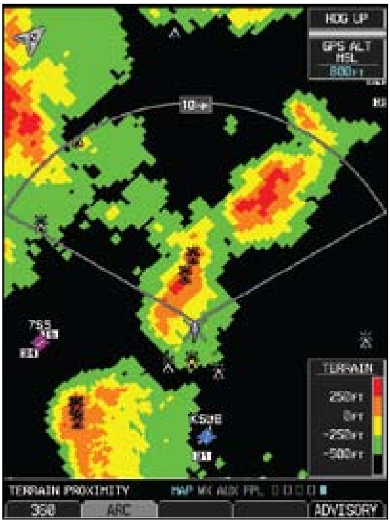
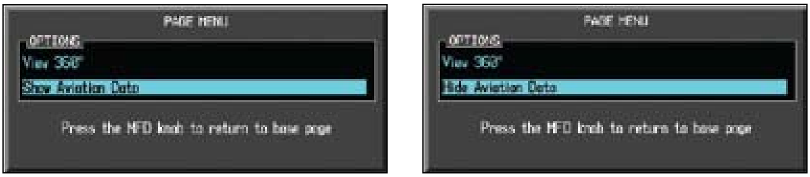

HDG UP
GPS ALT
MSL
800FT
10NM
7S5
KSWE
TERRAIN
250FT
0FT
-250FT
-500FT
TERRAIN PROXIMITY
MAP WX AUX FPL
360
ARC
ADVISORY

Figure 4-7  Terrain Page with 120° Arc

### 4.3.1.4 Terrain Proximity Page Aviation Data

The Page Menu selections allow you to hide or show aviation data overlay on the Terrain page.

1) While viewing the Terrain page of the MAP page group, press **MENU** for Map selections to hide or show aviation data overlay on the Terrain page.



PAGE MENU
OPTIONS
View 360°
Show Aviation Data
Press the MFD knob to return to base page

PAGE MENU
OPTIONS
View 360°
Hide Aviation Data
Press the MFD knob to return to base page

**Figure 4-8 Show/Hide Aviation Data on the Terrain Page**

2) Press **ENT** to save the highlighted value.

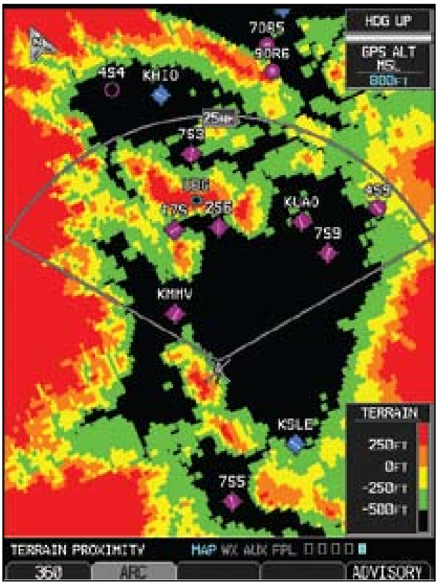
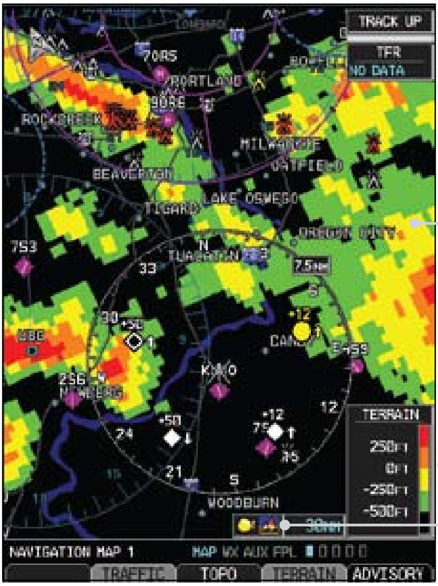

HDG UP
GPS ALT MSL
800FT
7085
50R6
454
KHIO
25NM
753
UBG
7S5
256
KLAO
459
759
KMMV
KSLE
755
TERRAIN
250FT
0FT
-250FT
-500FT
TERRAIN PROXIMITY
MAP WX AUX FPL
360
ARC
ADVISORY

**Figure 4-9 Terrain Page with Aviation Data Displayed and 120° Arc View**


TRACK UP
TFR
NO DATA
PORTLAND
ROCKCREEK
MILWAUKIE
BEAVERTON
LAKE OSWEGO
TIGARD
OREGON CITY
TUALATIN
CANBY
NEWBERG
WOODBURN
TERRAIN
250FT
0FT
-250FT
-500FT
NAVIGATION MAP 1
MAP WX AUX FPL
TRAFFIC
TOPO
TERRAIN
ADVISORY

Terrain Overlay

Terrain Scale

Terrain Data Icon

**Figure 4-10 Navigation Map Page with Terrain Data Displayed**

## 4.3.2 Terrain Proximity Limitations

Terrain Proximity displays terrain and obstructions relative to the altitude of the aircraft. Individual obstructions may be shown if available in the database. However, all obstructions may not be available in the database and data may be inaccurate. Never use this information for navigation or to maneuver to avoid obstacles.

Terrain information is based on terrain elevation information in a database that may contain inaccuracies. Terrain information should be used as an aid to situational awareness. Never use it for navigation or to maneuver to avoid terrain.

Terrain uses terrain and obstacle information supplied by government sources. The displayed information should never be understood as being all-inclusive.

***WARNING:*** *The data contained in the TERRAIN databases comes from government agencies. Garmin accurately processes and cross-validates the data but cannot guarantee the accuracy and completeness of the data.*

### 4.3.3 System Status

The Terrain system continually monitors several system-critical items, such as database validity, hardware status, and GPS status. Should the system detect a failure, a failure message will be displayed.

## 4.4 External H-TAWS

If an external 400W/500W-series H-TAWS unit is installed and interfaced to the G500H, the alerts generated by the external unit will be displayed on the PFD. Refer to the 400W/500W-series Garmin Optional Displays Pilot's Guide Addendum (p/n 190-00356-30) for more information regarding these alerts.

H-TAWS annunciations received from the GNS 400W/500W Series H-TAWS unit will be displayed to the left and aligned with the top of the Altitude Tape on the G500H PFD. A new annunciation will flash for approximately five seconds.

- HTAWS annunciations can only be received from the #1 GNS unit if multiple GNS units are installed.
- If the #1 GNS unit is powered OFF the G500H will revert to Terrain HSVT alerting if equipped with synthetic vision.

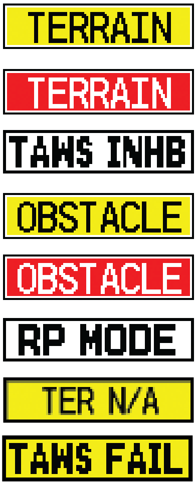


Figure 4-11 H-TAWS Annunciations from a 400W/500W-series Unit

***NOTE:*** *H-TAWS Caution Alerts are displayed as black text on a yellow background; H-TAWS Warning Alerts are displayed as white text on a red background.*

## 4.5 Garmin Terrain-HSVT™ (Optional)

Garmin Terrain-HSVT™ refers to a subset of H-TAWS that meets the terrain alerting requirements outlined in Section 7.b of AC 23-26. Terrain-HSVT is a subset of H-TAWS that provides a FLTA functionality with visual alerting and aural alerting. Terrain-HSVT is provided with Garmin Synthetic Vision Technology (SVT™) functionality and not provided separately.

Terrain-HSVT alerting consists of the following alert types:

- Forward Looking Terrain Avoidance (FLTA) Alerting which consists of:
- Required Terrain Clearance (RTC) / Required Obstacle Clearance (ROC) Alerting
- Imminent Terrain Impact (ITI) / Imminent Obstacle Impact (IOI) Alerting

Terrain-HSVT is available in G500H GDU 620 SW version 4.00, and later.

Terrain-HSVT utilizes terrain and obstacle databases that are referenced to mean sea level (MSL). Using the GPS position and GPS-MSL altitude, Terrain-HSVT displays a 2-D picture of the surrounding terrain and obstacles relative to the position and altitude of the aircraft. The GPS position and GPS-MSL altitude are used to calculate and "predict" the aircraft's flight path in relation to the surrounding terrain and obstacles. In this manner, Terrain-HSVT can provide advanced alerts of predicted dangerous terrain conditions. Detailed alert modes are described later in this section.

To function properly Terrain-HSVT requires the use of databases specific to helicopters and Terrain-HSVT. The databases required are:

1) 6 arc-second Terrain Databases
2) Helicopter Obstacle Database
3) Aviation Database including Heliports

## 4.5.1 Garmin Terrain-HSVT™ Page 120° Arc or 360° Rings

Select the 120º Arc or 360º rings overlay for the Terrain page with either the 360/Arc soft keys or from the Page Menu.

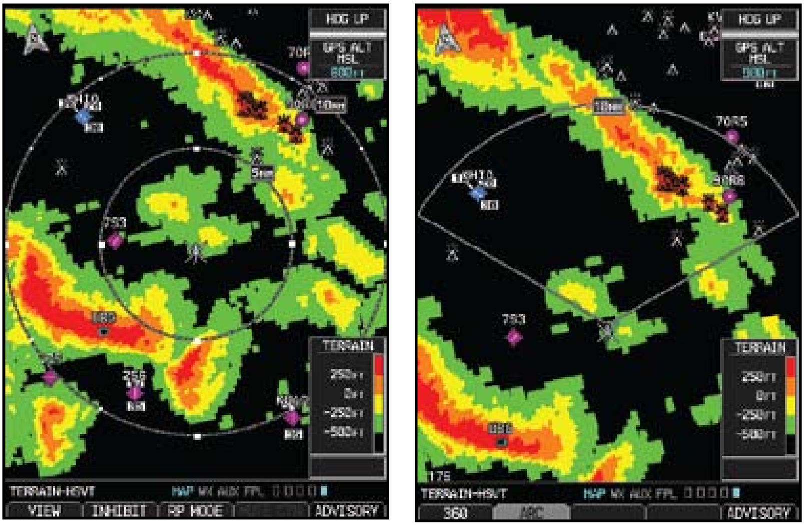

HDG UP
GPS ALT MSL
TERRAIN
250FT
0FT
-250FT
-500FT
TERRAIN-HSVT
MAP WX AUX FPL
VIEW
INHIBIT
RP MODE
ADVISORY
360
ARC

Figure 4-12 Terrain-HSVT 360 and Arc Views

1. Press the **VIEW** soft key and then the **360** or **Arc** soft key.

   OR

2. Press **MENU** and the with the "View Arc" or "View 360°" selection highlighted press **ENT**.

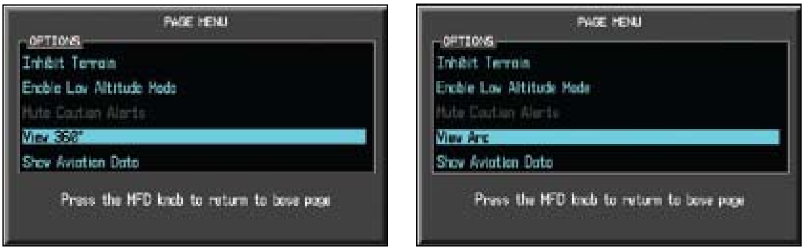

PAGE MENU
OPTIONS
Inhibit Terrain
Enable Low Altitude Mode
Mute Caution Alerts
View 360°
Show Aviation Data
Press the FMS knob to return to base page
PAGE MENU
OPTIONS
Inhibit Terrain
Enable Low Altitude Mode
Mute Caution Alerts
View Arc
Show Aviation Data
Press the FMS knob to return to base page

Figure 4-13 Terrain-SVT Page Menu Viewing Selections

## 4.5.2 Garmin Terrain-HSVT™ Page Aviation Data

Select the display of Aviation data on the Garmin Terrain-HSVT page. The Page Menu selections allow you to hide or show aviation data overlay on the Terrain or the Map Setup options for the Navigation Map pages.

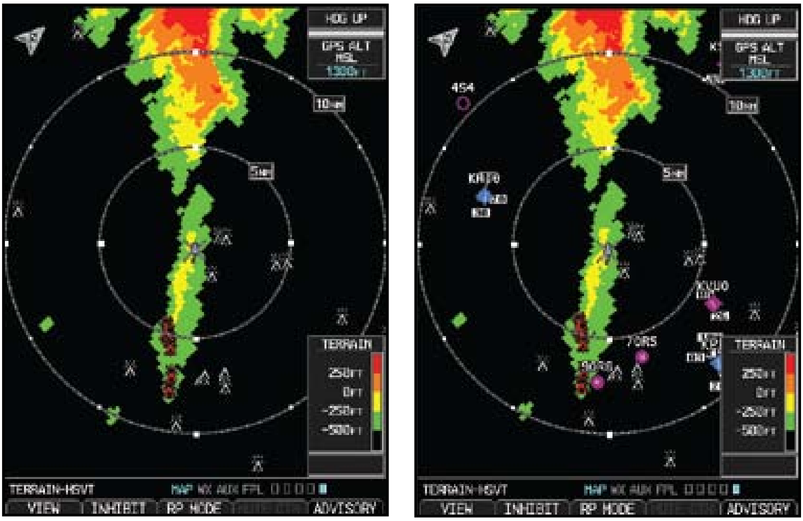
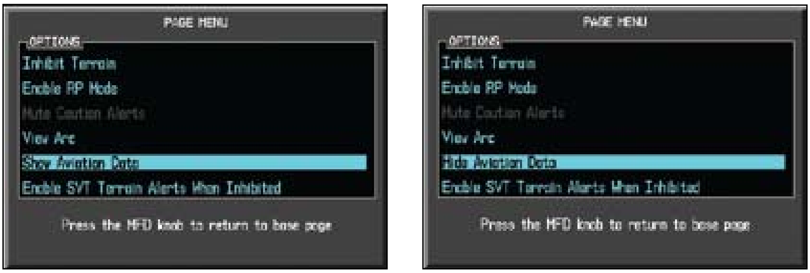


Figure 4-14 Terrain-HSVT Hide and Show Aviation Data

1) While viewing the Terrain page of the MAP page group, press **MENU** for Map selections to hide or show aviation data overlay on the Terrain or the Map Setup options for the Navigation Map pages.



PAGE MENU
OPTIONS
Inhibit Terrain
Enable RP Mode
Mute Caution Alerts
View Arc
Show Aviation Data
Enable SVT Terrain Alerts When Inhibited
Press the MFD knob to return to base page

PAGE MENU
OPTIONS
Inhibit Terrain
Enable RP Mode
Mute Caution Alerts
View Arc
Hide Aviation Data
Enable SVT Terrain Alerts When Inhibited
Press the MFD knob to return to base page

Figure 4-15 Show/Hide Aviation Data on the Terrain-HSVT Page

2) Press **ENT** to save the highlighted value.

### 4.5.3 Inhibiting/Enabling Garmin Terrain-HSVT™ Alerting

Terrain-HSVT has an inhibit mode that deactivates the aural and visual alerts. Pilots should use discretion when inhibiting Terrain-HSVT and always remember to enable the system when appropriate.

When Terrain HSVT is inhibited the following terrain alerts functions are inhibited:

- Aural Alerts
- Pop up alert on MFD
- Annunciator on PFD
- Terrain warning and caution shading on PFD synthetic terrain

***NOTE:** See AFMS for guidance on inhibiting Terrain-HSVT.*

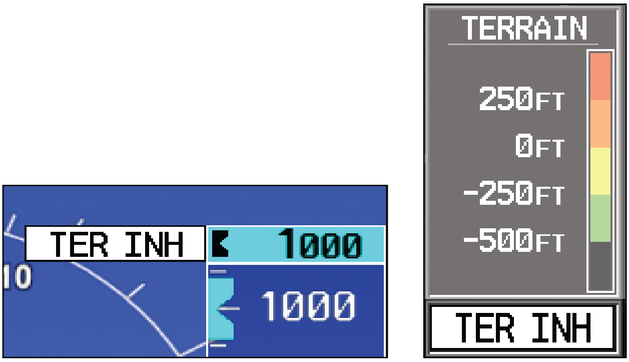


**Figure 4-16 Terrain-HSVT Alerting Disabled (Alerts Inhibited) Annunciation (PFD & MFD)**

1) In MAP page group, turn the small **MFD** knob to reach the HTerrain SVT Page.

2) Press the **INHIBIT** soft key to inhibit or enable Terrain SVT (choice dependent on current state).

OR

1) Press the **MENU** key.

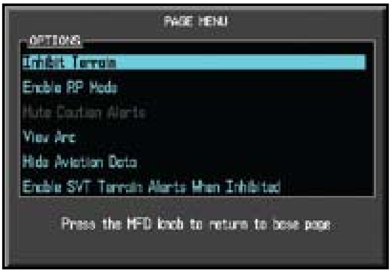

PAGE MENU
OPTIONS
Inhibit Terrain
Enable RP Mode
Mute Caution Alerts
View Arc
Hide Aviation Data
Enable SVT Terrain Alerts When Inhibited
Press the MFD knob to return to base page

**Figure 4-17 Select Inhibit Terrain-HSVT Alerting (Alerts Will Be Inhibited)**

2) Use the large or small **MFD** knob to highlight "Inhibit Terrain" or "Enable Terrain" (choice dependent on current state) and press the **ENT** key.

## 4.5.4 Garmin Terrain-HSVT™ Reduce Protection (RP) Mode

The reduced protection mode functionality allows operating with a reduction in the alerting thresholds, and suppresses visual and aural annunciation of caution alerts. Reduced protection allows low level operations and landings off airport with a minimum number of alerts while continuing to provide protection from terrain and obstacles. Reduced Protection should only be selected when operating in visual contact with the terrain as alerting times are significantly less than in normal mode.

Enable or disable Reduce Protection (RP) Mode on the Garmin Terrain-HSVT page. The Page Menu selections allow you to hide or show aviation data overlay on the Terrain Map page.

The MFD Terrain Scale will show a "RP" annunciation when RP Mode is enabled. The "RP" annunciation will also be shown in the upper right corner of the PFD.

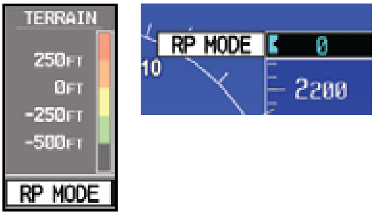

TERRAIN
250FT
0FT
-250FT
-500FT
RP MODE
RP MODE
0
10
2200

**Figure 4-18 MFD and PFD RP Mode Annunciation**

1) While viewing the Terrain page of the MAP page group, press **MENU** for Map selections to enable or disable RP Mode on the Terrain page.

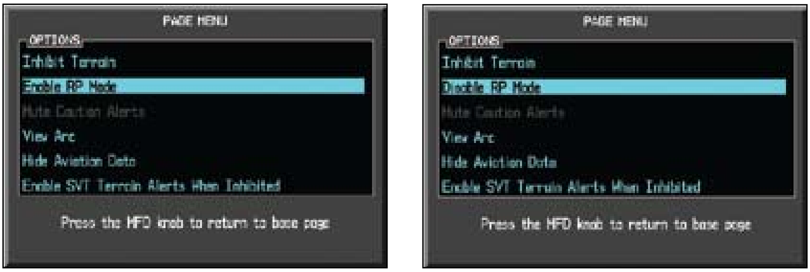

PAGE MENU
OPTIONS
Inhibit Terrain
Enable RP Mode
Mute Caution Alerts
View Arc
Hide Aviation Data
Enable SVT Terrain Alerts When Inhibited
Press the MFD knob to return to base page
PAGE MENU
OPTIONS
Inhibit Terrain
Disable RP Mode
Mute Caution Alerts
View Arc
Hide Aviation Data
Enable SVT Terrain Alerts When Inhibited
Press the MFD knob to return to base page

**Figure 4-19 Enable or Disable RP Mode on the Terrain-HSVT Page**

2) Press **ENT** to save the highlighted value.

OR

1) While viewing the Terrain page of the MAP page group, press the **RP** soft key to enable or disable RP Mode on the Terrain page.

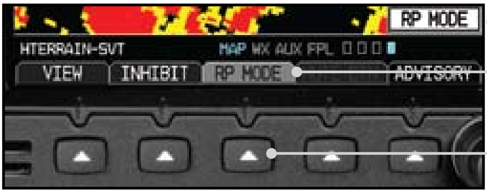

RP MODE
HTERRAIN-SVT
MAP WX AUX FPL
VIEW
INHIBIT
RP MODE
ADVISORY
*RP Mode Annunciation*
*RP Mode Soft Key Label*
*Press To Toggle RP Mode*

**Figure 4-20 Enable or Disable RP Mode on the Terrain-HSVT Page**

2) Press the **RP** soft key to toggle RP Mode on and off.

## 4.5.5 Synthetic Vision Alerts and Annunciations

Terrain-HSVT alerts employ a CAUTION or a WARNING alert severity level in the normal mode, but only a WARNING alert severity level in RP mode. When an alert is issued, visual annunciations are displayed and aural alerts are simultaneously issued.

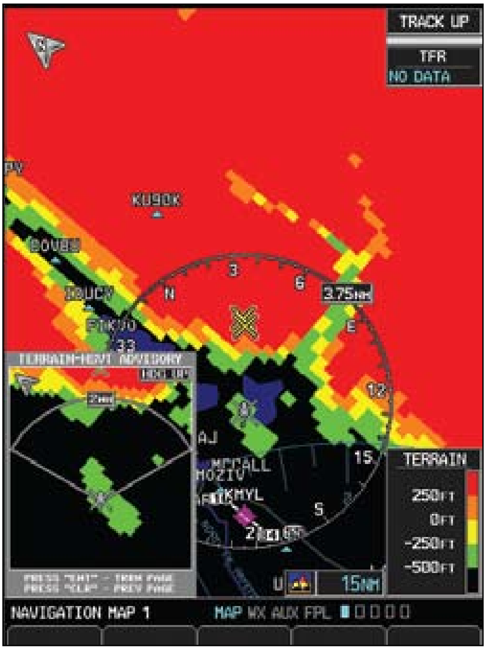
When an alert is issued, annunciations appear on the PFD and MFD (Terrain-HSVT page only). The Terrain Alert Annunciation is shown to the upper left of the Altimeter on the PFD and below the Terrain Legend on the MFD. If the Terrain-HSVT page is not displayed at the time, a pop-up alert appears on the MFD.

### To acknowledge the pop-up alert:

Press the **CLR** key (returns to the currently viewed page)

OR

Press the **ENT** key (accesses the Terrain-HSVT Page)


TRACK UP
TFR
NO DATA
KUSDK
BOVBE
IDUCY
N
3
6
3.75NM
E
FTKVO
33
TERRAIN-HSVT ADVISORY
2NM
12
AJ
MCCALL
MOZIV
KMYL
15
S
TERRAIN
250FT
0FT
-250FT
-500FT
15NM
U
NAVIGATION MAP 1
MAP WX AUX FPL

PRESS "ENT" - TERR PAGE
PRESS "CLR" - PREV PAGE

Figure 4-21 Terrain-SVT Advisory Pop-Up on the MFD

| Alert Type | PFD/MFD Alert Annunciation | Aural Message |
|---|---|---|
| GPS signal re-established | None | "Terrain System Available" |
| Terrain System Test Successful | None | "Terrain System test OK" |
| Terrain System Test in Progress | TER TEST | None |
| Terrain Alerting is disabled | TER INH | None |
| No GPS position<br>Excessively degraded GPS signal | TER N/A | "Terrain System Not Available" |
| Terrain SVT System Test Fail | TER FAIL | "Terrain System Failure" |

Table 4-3 Terrain-SVT System Test Status Annunciations

| Alert Type | PFD/MFD Alert Annunciation | Aural Message |
|---|---|---|
| FLTA Terrain Caution (RTC-C, ITI-C) | TERRAIN | "Caution, Terrain, Terrain" |
| FLTA Terrain Warning (RTC-W, ITI-W) | TERRAIN | "Warning, Terrain, Terrain" |
| FLTA Obstacle Caution (ROC-C, IOI-C) | OBSTACLE | "Caution, Obstacle, Obstacle" |
| FLTA Obstacle Warning (ROC-W, IOI-W) | OBSTACLE | "Warning, Obstacle, Obstacle" |

Table 4-4 Terrain-HSVT Alerts Summary

## 4.5.6 Mute Caution Alerts

Aural Caution Alert, when present, may be suppressed by pressing the **MUTE CTN** soft key or selecting Mute Caution Alerts from the Menu.

### To Mute or Unmute Caution Alerts:

1) When the MUTE CTN soft key label is present, press the **MUTE CTN** key (Aural Caution Alerts will be muted).

OR

2) Press the **MENU** key, select Mute Caution Alerts, and press **ENT**.

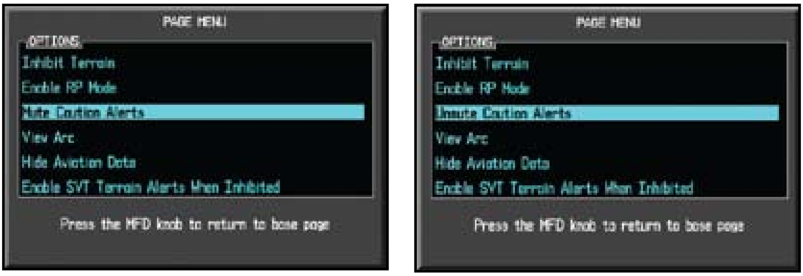

PAGE MENU
OPTIONS
Inhibit Terrain
Enable RP Mode
Mute Caution Alerts
View Arc
Hide Aviation Data
Enable SVT Terrain Alerts When Inhibited
Press the MFD knob to return to base page
PAGE MENU
OPTIONS
Inhibit Terrain
Enable RP Mode
Unmute Caution Alerts
View Arc
Hide Aviation Data
Enable SVT Terrain Alerts When Inhibited
Press the MFD knob to return to base page

Figure 4-22 Mute and Unmute Caution Alerts

## 4.5.7 SVT Alerts When Terrain Inhibited

If the pilot desires to retain the Terrain warning shading on PFD synthetic terrain even when Terrain HSVT is inhibited then select the Enable SVT Terrain Alerts When Inhibited menu option.

### To Enable or Disable SVT Terrain Alerts When Terrain Is Inhibited:

1) While viewing the Terrain-HSVT page of the MAP page group, press the **MENU** key.

2) Highlight Disable SVT Terrain Alerts When Inhibited and press **ENT**.

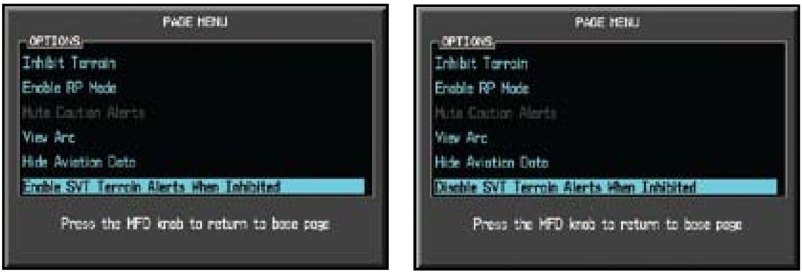

PAGE MENU
OPTIONS
Inhibit Terrain
Enable RP Mode
Mute Caution Alerts
View Arc
Hide Aviation Data
Enable SVT Terrain Alerts When Inhibited
Press the MFD knob to return to base page
PAGE MENU
OPTIONS
Inhibit Terrain
Enable RP Mode
Mute Caution Alerts
View Arc
Hide Aviation Data
Disable SVT Terrain Alerts When Inhibited
Press the MFD knob to return to base page

Figure 4-23 Enable/Disable SVT Terrain Alerts When Inhibited

# 4.6 TAS Traffic (Optional)

TAS refers to an active Traffic Adivsory System that may be optionally displayed on the PFD and/or MFD. The TAS is installed separately from the G600 system. There are variations in performance and control among the various G600-compatible TAS systems. Refer to the appropriate TAS documentation for detailed information on the operation of the TAS system. This section describes the display and control functions available on the G600 system.

***NOTE:*** *TIS and TAS are mutually exclusive.*

***NOTE:*** *Aircraft without an operating transponder are invisible to both Traffic Advisory Systems (TAS) and TIS. Aircraft without altitude reporting capability are shown without altitude separation data or climb descent indication.*

***NOTE:*** *Traffic is also displayed in the SVT feature on the PFD.*

## 4.6.1 Displaying and Operating Traffic (TAS Systems)

The Traffic Map Page shows surrounding TAS traffic data in relation to the aircraft's current position and altitude without basemap clutter. Aircraft orientation is always heading up unless no valid heading is received. The traffic mode and altitude display mode are annunciated in the upper left corner.

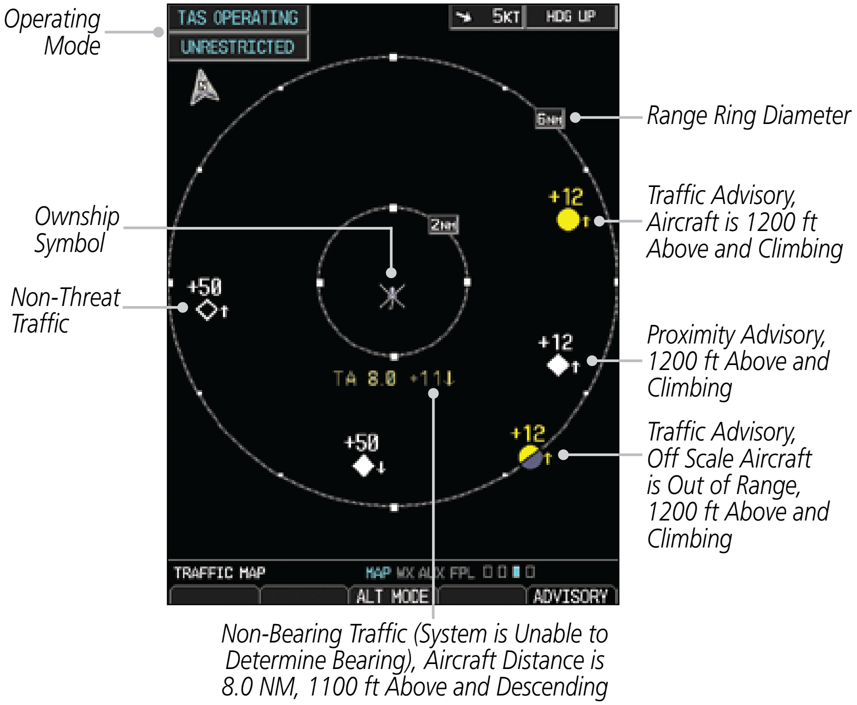

Operating Mode
TAS OPERATING
UNRESTRICTED
5KT
HDG UP
6NM
Range Ring Diameter
Ownship Symbol
2NM
+12
Traffic Advisory, Aircraft is 1200 ft Above and Climbing
Non-Threat Traffic
+50
+12
Proximity Advisory, 1200 ft Above and Climbing
TA 8.0 +11↓
+50
+12
Traffic Advisory, Off Scale Aircraft is Out of Range, 1200 ft Above and Climbing
TRAFFIC MAP
MAP WX AUX FPL
ALT MODE
ADVISORY
Non-Bearing Traffic (System is Unable to Determine Bearing), Aircraft Distance is 8.0 NM, 1100 ft Above and Descending

**Figure 4-24 Traffic Map Page - TAS**

#### 4.6.1.1 Switching from Standby Mode to Operating Modes

The unit must be in operating mode for traffic to be displayed. The ability to switch from standby to operating mode on the ground is especially useful for scanning the airspace around the airport before takeoff.

1) While viewing the Traffic page of the MAP page group, select the **OPERATE** soft key or press the **MENU** key and turn the small **MFD** knob to select Operating Mode.

2) To switch to Standby Mode from the Traffic Page, select the **STANDBY** soft key.

3) Select the **ALT MODE** soft key to change the altitude volume.

4) Select the **STANDBY** soft key to place the system in the Standby mode. STANDBY is displayed in the Traffic mode field.

***NOTE:** Not all TAS systems can be controlled from the G500H. The Operate/Standby soft keys may not be displayed. An alert will be generated when Standby is selected and the aircraft is in the air.*

### 4.6.1.2 Range Ring

Pressing the **RNG** keys will zoom in and out in preset steps depending on the installed equipment.

## 4.6.2 Altitude Display

**Changing the altitude display mode**

1) Press the **ALT MODE** soft key to change the altitude volume.

2) Select the desired altitude volume by pressing the **BELOW**, **NORMAL**, **ABOVE**, or **UNREST** (unrestricted) soft keys. The selection is displayed in the Altitude mode field.

| Altitude Mode | Displayed Traffic Range |
|---|---|
| Below | -9700 ft to 2700 ft |
| Normal | -2700 ft to 2700 ft |
| Above | -2700 ft to 9700 ft |
| Unrestricted | All Traffic Shown |

**Table 4-5 Displayed Traffic Range**

***NOTE:*** *Traffic Advisories (TAs) are always displayed, regardless of altitude mode.*

## 4.6.3 TAS Symbology

Traffic Advisory System (TAS) is designed to help in detection and avoidance of other aircraft. TAS uses an on-board interrogator-processor to detect traffic. Only aircraft with operating transponders will be detected. Traffic is displayed according to TCAS symbology using four different symbols.

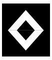
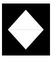
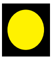
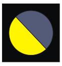
| TAS Symbol | Description |
|---|---|
|  | Non-Threat Traffic<br>(intruder is beyond 5 NM and greater than 1200 ft vertical separation) |
|  | Proximity Advisory (PA)<br>(intruder is within 5 NM and less than 1200 ft vertical separation) |
|  | Traffic Advisory (TA)<br>(closing rate, distance, and vertical separation meet TA criteria) |
|  | Traffic Advisory Off Scale |

**Table 4-6 Traffic Symbol Description**

A Non-Threat Advisory, shown as an open white diamond, indicates that an intruding aircraft is at greater than ±1200 feet relative altitude or the distance is beyond five NM.

A Proximity Advisory indicates that the intruding aircraft is within ±1200 feet and is within five NM range, but is still not considered a threat.

A Traffic Advisory (TA) alerts the crew to a potentially hazardous intruding aircraft. Closing rate, distance, and vertical separation meet TA criteria. A Traffic Advisory that is beyond the selected display range is indicated by a half TA symbol at the edge of the screen at the relative bearing of the intruder.

## 4.6.4 Traffic System Status

***NOTE:** Refer to the equipment documentation for information on the self-test and operating modes.*

The traffic mode is indicated in the upper left corner of the Traffic Map Page.

| Mode | Traffic Mode Annunciation (Traffic Map Page) | Traffic Display Enabled Icon (Other Maps) |
|---|---|---|
| TAS Self-test Initiated | TEST | ⊗ |
| TAS Operating | OPERATING | ● |
| TAS Standby | STANDBY<br>(also shown in white in center of page) | ⊗ |
| TAS Failed* | FAIL | ⊗ |

**Table 4-7 TAS Modes**

If the unit fails, an annunciation as to the cause of the failure is shown in the center of the Traffic Map Page.

| Traffic Map Page Annunciation | Description |
|---|---|
| NO DATA | Data is not being received from the TAS unit |
| DATA FAILED | Data is being received from the TAS unit, but the unit is self-reporting a failure |
| FAILED | Incorrect data format received from the TAS unit |

**Table 4-8 TAS Failure Annunciations**

The annunciations to indicate the status of traffic information appear in a banner at the lower left corner of maps on which traffic can be displayed.

| Traffic Status Banner Annunciation | Description |
|---|---|
| **TA OFF SCALE*** | A Traffic Advisory is outside the selected display range<br>Annunciation is removed when traffic comes within the selected display range |
| **TA X.X ± XX ↕**** | System cannot determine bearing of Traffic Advisory<br>Annunciation indicates distance in NM, altitude separation in hundreds of feet, and altitude trend arrow (climbing/descending) |
| **TRFC FAIL** | TAS unit has failed (unit is self-reporting a failure or sending incorrectly formatted data) |
| **NO TRFC DATA** | Data is not being received from the TAS unit |

**Shown as symbol on Traffic Map Page*
***Shown in center of Traffic Map Page*

**Table 4-9 TAS Traffic Status Annunciations**

## 4.6.5 Traffic Pop-Up

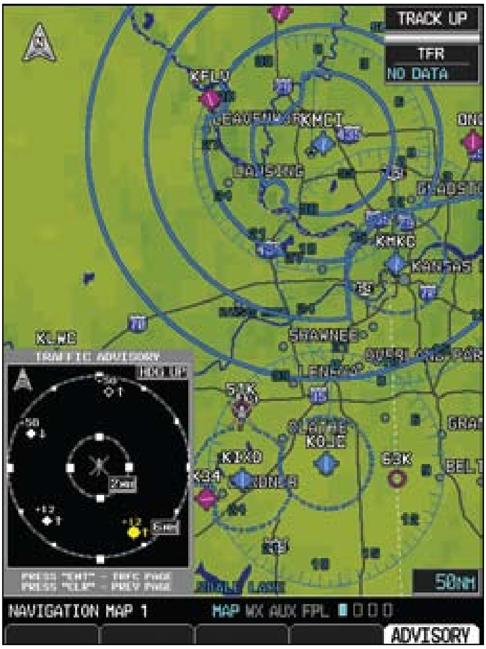
When the GDU 620 MFD is displaying any page (other than the NAV Traffic page) and a traffic alert becomes active, the Traffic Warning pop-up will be displayed.

***NOTE:** The traffic pop-up will not appear when your aircraft is on the ground.*

Press **ENT** to go directly to the Traffic page.

OR

Press **CLR** to return to the previously viewed page.


TRACK UP
TFR
NO DATA
KFLV
LEAVENWORTH
KMCI
LANSING
GLADSTONE
KMKC
KANSAS
SHAWNEE
OVERLAND PAR
LENEXA
KLWC
TRAFFIC ADVISORY
HDG UP
51K
OLATHE
KOJC
KIXD
K34
63K
BELT
GRAN
50NM
PRESS "ENT" - TRFC PAGE
PRESS "CLR" - PREV PAGE
NAVIGATION MAP 1
MAP WX AUX FPL
ADVISORY

*Traffic Pop-Up*

Figure 4-25 Traffic Pop-Up

# 4.7 TIS Traffic (Optional)

***WARNING**: The Traffic Information Service (TIS) is intended for advisory use only. TIS is intended to help the pilot locate traffic visually. It is the responsibility of the pilot to see and maneuver to avoid traffic.*

***NOTE**: TIS is available only when the aircraft is within the service volume of a TIS-capable terminal radar site. Aircraft without an operating transponder are invisible to both Traffic Advisory Systems (TAS) and TIS. Aircraft without altitude reporting capability are shown without altitude separation data or climb descent indication.*

***NOTE**: TIS and TAS are mutually exclusive.*

***NOTE**: Traffic is also displayed in the SVT feature on the PFD.*

The type of traffic systems that is installed is determined by the traffic page display in the upper left corner of the MFD.

If Traffic Information Service (TIS) is configured, TIS will be displayed in the upper left corner of the MFD.

Traffic Information Service (TIS) is designed to help in detection and avoidance of other aircraft. TIS uses the Mode S transponder for the traffic data link. TIS receives traffic information from ground stations, and is updated every five seconds. The GDU 620 displays up to eight traffic targets within a 7.5 NM radius, from 3000 feet below to 3500 feet above the requesting aircraft. Traffic is displayed according to TCAS symbology using three different symbols.

## 4.7.1 Traffic Map Page

The Traffic Map Page is configured to show surrounding TIS traffic data in relation to the aircraft's current position and altitude, without clutter from the basemap. Aircraft orientation on this map is always heading up unless there is no valid heading.

The traffic mode is annunciated in the upper left corner of the Traffic Map Page. When the aircraft is on the ground, TIS automatically enters Standby Mode. Once the aircraft is airborne, TIS switches from Standby to Operating Mode and the GDU 620 begins to display traffic information.

### Displaying traffic on the Traffic Map Page

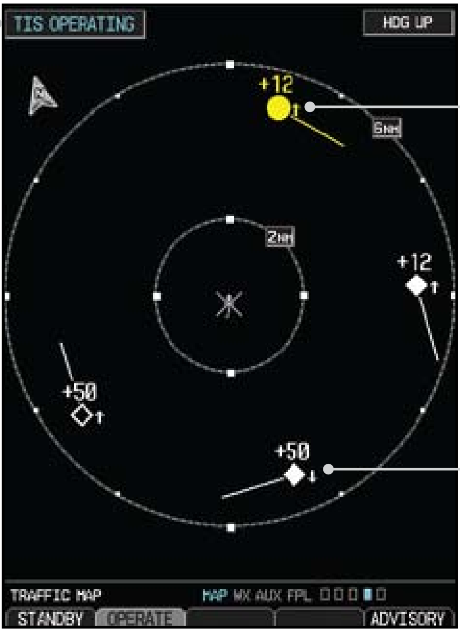
1) Turn the large **MFD** knob to select the Map Page Group.
2) Turn the small **MFD** knob to select the Traffic Map Page.
3) Confirm TIS is in Operating Mode:

   Select the **OPERATE** soft key to begin displaying traffic.

   OR

1) Press the **MENU** key.
2) Select Operate Mode (shown if TIS is in Standby Mode) and then press the **ENT** key.

*Operating Mode*


TIS OPERATING
HDG UP
+12
6NM
2NM
+12
+50
+50
TRAFFIC MAP
MAP WX AUX FPL
STANDBY
OPERATE
ADVISORY

*Traffic Advisory, Aircraft is 1200 feet above, climbing, and moving away*

*Proximity Advisory, Aircraft is 5000 feet below, descending and moving away*

**Figure 4-26 Traffic Map Page - TIS**

## 4.7.2 TIS Symbology

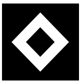
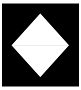
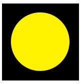
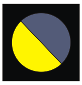
| TIS Symbol | Description |
|---|---|
|  | Non-Threat Traffic<br>(intruder is beyond 5 NM and greater than 1200 ft vertical separation) |
|  | Proximity Advisory (PA)<br>(intruder is within 5 NM and less than 1200 ft vertical separation) |
|  | Traffic Advisory (TA)<br>(closing rate, distance, and vertical separation meet TA criteria) |
|  | Traffic Advisory Off Scale |

**Table 4-10 TIS Traffic Symbols**

A Non-threat Advisory, shown as an open white diamond, indicates that an intruding aircraft is at greater than ±1200 feet relative altitude or the distance is beyond five NM.

A Traffic Advisory (TA) alerts the crew to a potentially hazardous intruding aircraft. Closing rate, distance, and vertical separation meet TA criteria. A Traffic Advisory that is beyond the selected display range is indicated by a half TA symbol at the edge of the screen at the relative bearing of the intruder.

TIS also provides a vector line showing the direction in which the traffic is moving, to the nearest 45°. Traffic information for which TIS is unable to determine the bearing (non-bearing traffic) is displayed in the center of the Traffic Map Page or in a banner at the lower left corner of maps other than the Traffic Map Page on which traffic can be displayed.

The altitude difference between the requesting aircraft and other intruder aircraft is displayed above/below the traffic symbol in hundreds of feet. If the other aircraft is above the requesting aircraft, the altitude separation appears above the traffic symbol; if below, the altitude separation appears below. Altitude trend is displayed as an up/down arrow (for speeds greater than 500 fpm in either direction) to the right of the target symbol. Traffic symbols for aircraft without altitude reporting capability appear without altitude separation or climb/descent information.

### 4.7.3 TIS Limitations

***NOTE:** This section on TIS Limitations is not comprehensive. Garmin recommends the user review the TIS Limitations section of the Aeronautical Information Manual, Section 1-3-5.*

TIS is NOT intended to be used as a collision avoidance system and does not relieve the pilot of responsibility to “see and avoid” other aircraft. TIS should not be used for avoidance maneuvers during IMC or other times when there is no visual contact with the intruder aircraft. TIS is intended only to assist in visual acquisition of other aircraft in VMC. No recommended avoidance maneuvers are provided for, nor authorized, as a direct result of a TIS intruder display or TIS advisory.

While TIS is a useful aid to visual traffic avoidance, it has some system limitations that must be fully understood to ensure proper use. Many of these limitations are inherent in secondary radar surveillance. In other words, the information provided by TIS will be no better than that provided to ATC. TIS will only display aircraft with operating transponders installed.

TIS relies on surveillance of the Mode S radar, which is a “secondary surveillance” radar similar to the ATCRBS. TIS operation may be intermittent during turns or other maneuvering. TIS is dependent on two-way, “line-of-sight” communication between the aircraft and the Mode S radar. Whenever the structure of the client aircraft comes between the transponder antenna (usually located on the underside of the aircraft) and the ground-based radar antenna, the signal may be temporarily interrupted. Other limitations and anomalies associated with TIS are described in the AIM, Section 1-3-5.

**Garmin is not responsible for Mode S geographical coverage. Operation of the ground stations is the responsibility of the FAA. Refer to the Aeronautical Information Manual for a Terminal Mode S Radar Site Map covering the U.S.**

***NOTE:*** *TIS will be unavailable at low altitudes in many areas of the U.S., particularly in mountainous regions. Also, when flying near the "floor" of radar coverage in a particular area, intruders below the client aircraft may not be detected by TIS.*

TIS information is collected one radar scan prior to the scan during which the uplink occurs. Therefore, the surveillance information is approximately five seconds old. In order to present the intruders in a "real time" position, the TIS ground station uses a "predictive algorithm" in its tracking software. This algorithm uses track history data to extrapolate intruders to their expected positions consistent with the time of display in the cockpit. Occasionally, aircraft maneuvering will cause this algorithm to induce errors in the display. These errors primarily affect relative bearing information and traffic target track vector (it will lag); intruder distance and altitude will remain relatively accurate and may be used to assist in "see and avoid." Some of the more common examples of these errors follow:

- When client or intruder aircraft maneuvers excessively or abruptly, the tracking algorithm may report incorrect horizontal position until the maneuvering aircraft stabilizes.
- When a rapidly closing intruder is on a course that crosses the client aircraft course at a shallow angle (either overtaking or head on) and either aircraft abruptly changes course within 0.25 NM, TIS may display the intruder on the opposite side of the client than it actually is.

**These are relatively rare occurrences and will be corrected in a few radar scans once the course has stabilized.**

## 4.7.4 TIS Alerts

When the number of Traffic Advisories (TAs) on the Traffic Map Page increases from one scan to the next, the following occur:

- A single "Traffic" voice alert is generated.
- A TRAFFIC Annunciation appears to the top left of the Attitude Indicator on the PFD, flashing for 5 seconds and remaining displayed until no TAs are detected in the area.

To reduce the number of nuisance alerts due to proximate aircraft, the "Traffic" voice alert is generated only when the number of TAs increases. For example, when the first TA is displayed, a voice and visual annunciation are generated. As long as a single TA remains on the display, no additional voice alerts are generated. If a second TA appears on the display or if the number of TAs initially decreases and then subsequently increases, another voice alert is generated.

A "Traffic Not Available" (TNA) voice alert is generated when the TIS service becomes unavailable or is out of range.

Traffic may not be displayed in the radar coverage area due to the following:

- Radar site TIS Mode S sensor is not operational or is out of service.
- Traffic or requesting aircraft is beyond the maximum range of the TIS-capable Mode S radar site.
- Traffic or requesting aircraft is above the radar site in the cone of silence and out of range of an adjacent site.
- Traffic or requesting aircraft is below radar coverage. In flat terrain, the coverage extends from about 3000 feet upward at 55 miles. Terrain and obstacles around the radar site can further decrease radar coverage in all directions.
- Traffic does not have an operating transponder.

### 4.7.5 Traffic Pop-Up

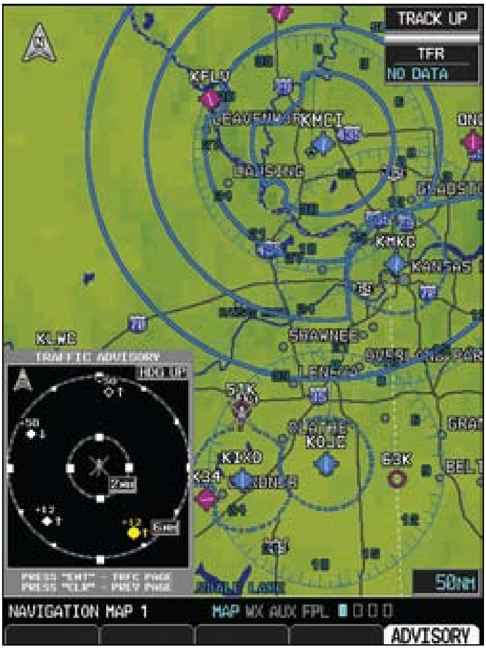
When the GDU 620 MFD is displaying any page (other than the NAV Traffic page) and a traffic alert becomes active, the Traffic Warning pop-up will be displayed.

***NOTE:*** *The traffic pop-up will not appear when your aircraft is on the ground.*

Press **ENT** to go directly to the Traffic page.

OR

Press **CLR** to return to the previously viewed page.


Traffic Pop-Up
TRACK UP
TFR
NO DATA
KFLV
LEAVENWORTH
KMCI
LANSING
GLADSTONE
KMKC
KANSAS
SHAWNEE
OVERLAND PARK
KLWC
TRAFFIC ADVISORY
HDG UP
-50
-58
+12
+12
2nm
6nm
57K
KIXD
K34
KOJC
63K
GRAN
BELT
50NM
NAVIGATION MAP 1
MAP WX AUX FPL
ADVISORY

PRESS "ENT" - TRFC PAGE
PRESS "CLR" - PREV PAGE

Figure 4-27 Traffic Pop-Up

## 4.7.6 TIS System Status

The GDU 620 performs an automatic test of TIS during power-up. If TIS passes the test, TIS enters Standby Mode on the ground or Operating Mode in the air. If TIS fails the power up test, an annunciation is shown in the center of the Traffic Map Page.

| Traffic Map Page Annunciation | Description |
|---|---|
| NO DATA* | Data is not being received from the transponder |
| DATA FAILED* | Data is being received from the transponder, but a failure is detected in the data stream |
| FAILED* | The transponder has failed |
| UNAVAILABLE | TIS is unavailable or out of range |

* *Contact a service center or Garmin dealer for corrective action*

**Table 4-11 TIS Failure Annunciations**

The traffic mode is annunciated in the upper left corner of the Traffic Map Page. When the aircraft is on the ground, TIS automatically enters Standby Mode. If traffic is selected for display on another map while Standby Mode is selected, the traffic display enabled icon is crossed out (also the case when TIS has failed). Once the aircraft is airborne, TIS switches to Operating Mode and traffic information is displayed. The mode can be changed manually using soft keys or the page menu.

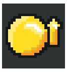
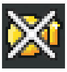
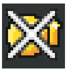
| Mode | Traffic Mode Annunciation (Traffic Map Page) | Traffic Display Enabled Icon (Other Maps) |
|---|---|---|
| TIS Operating | **OPERATING** |  |
| TIS Standby | **STANDBY**<br>(Also shown in white in center of page) |  |
| TIS Failed* | **FAIL** |  |

**Table 4-12 TIS Modes**

### Switching Between TIS Operating Modes

1) Turn the large **MFD** knob to the MAP page group and then turn the small **MFD** knob to the Traffic Map Page.

2) Select the **STANDBY** or **OPERATE** soft key to switch between modes. The mode is displayed in the upper left corner of the Traffic Map Page.

   OR

1) Press the **MENU** key.

2) Select Operate mode or Standby mode whether airborne or on the ground.

3) Press the **ENT** key.

***NOTE:** An alert will be generated when Standby is selected and the aircraft is in the air.*

The annunciations indicate the status of traffic information appear in a banner at the lower left corner of maps on which traffic can be displayed.

| Traffic Status Banner Annunciation | Description |
|---|---|
| **TA OFF SCALE*** | A Traffic Advisory is outside the selected display range<br>Annunciation is removed when traffic comes within the selected display range |
| **TA X.X ± XX ↕**** | System cannot determine bearing of Traffic Advisory<br>Annunciation indicates distance in NM, altitude separation in hundreds of feet, and altitude trend arrow (climbing/descending) |
| **AGE MM:SS** | Appears if traffic data is not refreshed within 6 seconds<br>If after another 6 seconds data is not received, traffic is removed from the display<br>The quality of displayed traffic information is reduced as the age increases |
| **TRFC COAST** | The displayed data is not current (6 to 12 seconds since last message)<br>The quality of displayed traffic information is reduced when this message is displayed |

| | |
|---|---|
| **TRFC RMVD** | Traffic is removed because it is too old for coasting (12 to 60 seconds since last message)<br>Traffic may exist within the selected display range, but it is not displayed |
| **TRFC FAIL** | Traffic data has failed |
| **NO TRFC DATA** | Traffic has not been detected |
| **TRFC UNAVAIL** | The traffic service is unavailable or out of range |

**Shown as symbol on Traffic Map Page*
***Shown in center of Traffic Map Page*

**Table 4-13  TIS Traffic Status Annunciations**

## 4.8 XM Weather (Optional)

The primary map for viewing XM Weather data are the Weather Data Link Pages in the Map Page Group. These are the only GDU 620 map displays capable of all available XM weather products. The Wx Weather pages may be oriented to either Track Up or North Up.

### 4.8.1 Using XM Satellite Weather Products

When a weather product is active on the Weather Data Link Page or the Navigation Map Page, the age of the data is displayed on the screen. The age of the product is based on the time difference between when the data was assembled on the ground and the current GPS time. Weather products are refreshed at specific intervals (defined in the Refresh Rate column).

If for any reason, a weather product is not refreshed within the 30, 60, 90, or 120 minute Expiration Time intervals, the data is considered expired and is removed from the display. This ensures that the displayed data is consistent with what is currently being broadcast by XM Satellite Radio services. If more than half of the expiration time has elapsed from the time the data is received, the color of the product age displayed changes to yellow.

## 4.8.2 Customizing the XM Weather Map

Each Wx Data Link Map page may be customized individually. The Wx Data Link Map pages are customized by selecting options from the Page Menu. The Page Menu options include choices for Weather Setup and displaying the Weather Legends. The Weather Setup choice covers selections for adjusting the viewing ranges of the weather products.

1) While viewing a WX Data Link Map page of the WX page group, press the **MENU** key to display the Page Menu Options. The cursor flashes on the "Weather Setup" option. Press **ENT.**

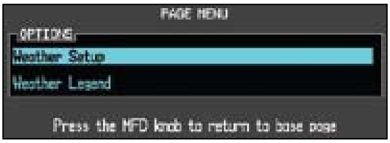
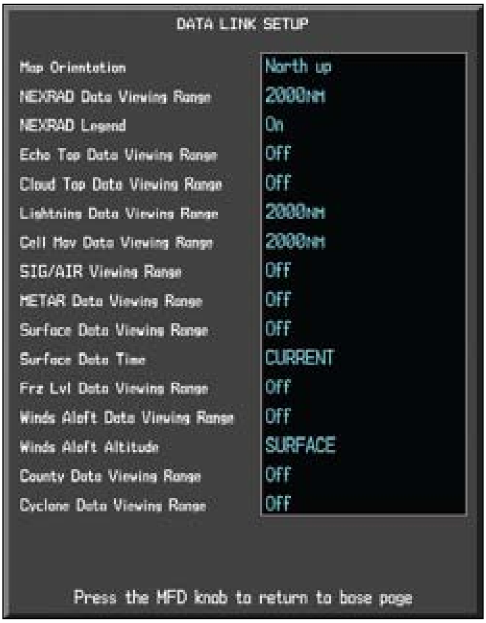


Figure 4-28 Weather Page Menu Options

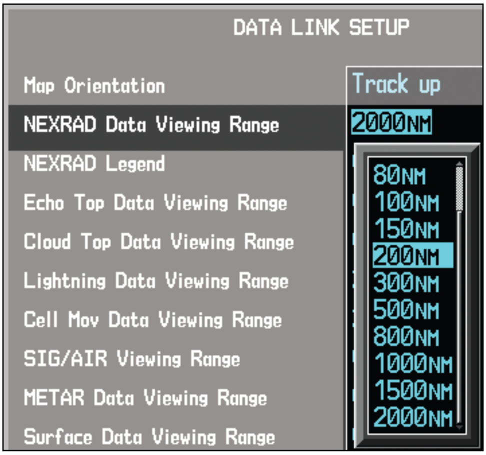
2) With the Data Link Setup Menu displayed, turn the Large **MFD** knob to select the desired item and press **ENT**.


DATA LINK SETUP

| | |
|---|---|
| Map Orientation | North up |
| NEXRAD Data Viewing Range | 2000NM |
| NEXRAD Legend | On |
| Echo Top Data Viewing Range | OFF |
| Cloud Top Data Viewing Range | OFF |
| Lightning Data Viewing Range | 2000NM |
| Cell Mov Data Viewing Range | 2000NM |
| SIG/AIR Viewing Range | OFF |
| METAR Data Viewing Range | OFF |
| Surface Data Viewing Range | OFF |
| Surface Data Time | CURRENT |
| Frz Lvl Data Viewing Range | OFF |
| Winds Aloft Data Viewing Range | OFF |
| Winds Aloft Altitude | SURFACE |
| County Data Viewing Range | OFF |
| Cyclone Data Viewing Range | OFF |

Figure 4-29 Weather Data Link Setup Menu Options

3) Turn the small **MFD** knob to select the desired weather feature option.


DATA LINK SETUP

Map Orientation: Track up

NEXRAD Data Viewing Range: 2000NM

NEXRAD Legend

Echo Top Data Viewing Range

Cloud Top Data Viewing Range

Lightning Data Viewing Range

Cell Mov Data Viewing Range

SIG/AIR Viewing Range

METAR Data Viewing Range

Surface Data Viewing Range

**Figure 4-30  Weather Data Link Setup Menu Option Selection**

4) Press **ENT** to save a selection.

5) Turn the large **MFD** knob to the next desired option or press the small **MFD** knob to cancel and return to the XM Weather Data Link Map Page.

| WX Page Menu - Weather Setup | |
|---|---|
| **Menu Item** | **Adjustment** |
| Map Orientation | North Up, Track Up |
| NEXRAD Data Viewing Range | Off, 50 NM to 2000 NM |
| NEXRAD Legend | On/Off |
| Echo Top Data Viewing Range | Off, 50 NM to 2000 NM |
| Cloud Top Data Viewing Range | Off, 50 NM to 2000 NM |
| Lightning Data Viewing Range | Off, 50 NM to 2000 NM |
| Cell Mov Data Viewing Range | Off, 50 NM to 2000 NM |
| SIG/Air Viewing Range | Off, 50 NM to 2000 NM |
| METAR Data Viewing Range | Off, 50 NM to 2000 NM |
| Surface Data Viewing Range | Off, 50 NM to 2000 NM |
| Surface Data Time | Current, 12 Hr, 24 Hr, 36 Hr, and 48 Hr |
| Frz Lvl Data Viewing Range | Off, 50 NM to 2000 NM |
| Wnd Aloft Data Viewing Range | Off, 50 NM to 2000 NM |
| Wnd Aloft Altitude | Surface, 3000 feet to 42000 feet |
| County Data Viewing Range | Off, 50 NM to 2000 NM |
| Cyclone Data Viewing Range | Off, 50 NM to 2000 NM |

**Table 4-14 Weather Page Menu Setup Options**

## 4.8.3 XM Weather Symbols and Product Age

The weather product symbols, the expiration time and the refresh rate are shown in the following table. The refresh rate represents the interval at which XM Satellite Radio broadcasts new signals that may or may not contain new weather data. It does not represent the rate at which weather data is updated or new content is received by the Data Link Receiver. Weather data is refreshed at intervals that are defined and controlled by XM Satellite Radio and its data vendors.

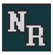
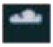
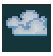
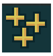
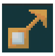
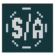
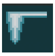
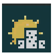
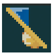
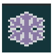
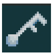
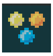
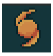
| Symbol | Weather Product | Expiration Time (Minutes) | Refresh Rate (Minutes) |
|---|---|---|---|
|  | NEXRAD (NEXRAD and Echo Top are Mutually Exclusive) | 30 | 5 |
|  | Echo Top (Cloud Top and Echo Top Mutually Exclusive) (NEXRAD and Echo Top Mutually Exclusive) | 30 | 7.5 |
|  | Cloud Top (Cloud Top and Echo Top Mutually Exclusive) | 60 | 15 |
|  | XM Lightning | 30 | 5 |
|  | Cell Movement | 30 | 1.25 |
|  | SIGMETs / AIRMETs | 60 | 12 |
|  | METARs | 90 | 12 |
|  | City Forecast | 90 | 12 |
|  | Surface Analysis | 60 | 12 |
|  | Freezing Levels | 120 | 12 |
|  | Winds Aloft | 90 | 12 |
|  | County Warnings | 60 | 5 |
|  | Cyclone Warnings | 60 | 12 |

**Table 4-15 Weather Product Symbols and Aging Times**

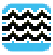
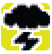
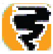
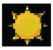
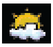
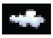
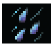
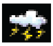
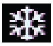
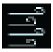
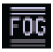
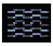
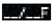
| Symbol | Description |
|---|---|
|  | Flood |
|  | Severe Thunderstorm |
|  | Tornado |
|  | Sunny |
|  | Part Sun |
|  | Cloudy |
|  | Rainy |
|  | T-Storm |
|  | Snow |
|  | Windy |
|  | Foggy |
|  | Haze |
|  | High/Low Temp |

Table 4-16  Weather Symbols

## 4.8.4 Weather Legends

The **LEGEND** soft key displays a pop-up legend of the currently used weather products. Pressing the **LEGEND** soft key again, the **MFD** knob, the **ENT**, or **CLR** keys will remove the legend.

1) A full page legend can be selected by selecting the Weather Legend option in the XM Weather Map Menu or pressing the **LEGEND** soft key on the Weather Map Page. The legend displayed will match the selected weather products. Turn the large or small **MFD** knobs to scroll through the legend, if necessary.

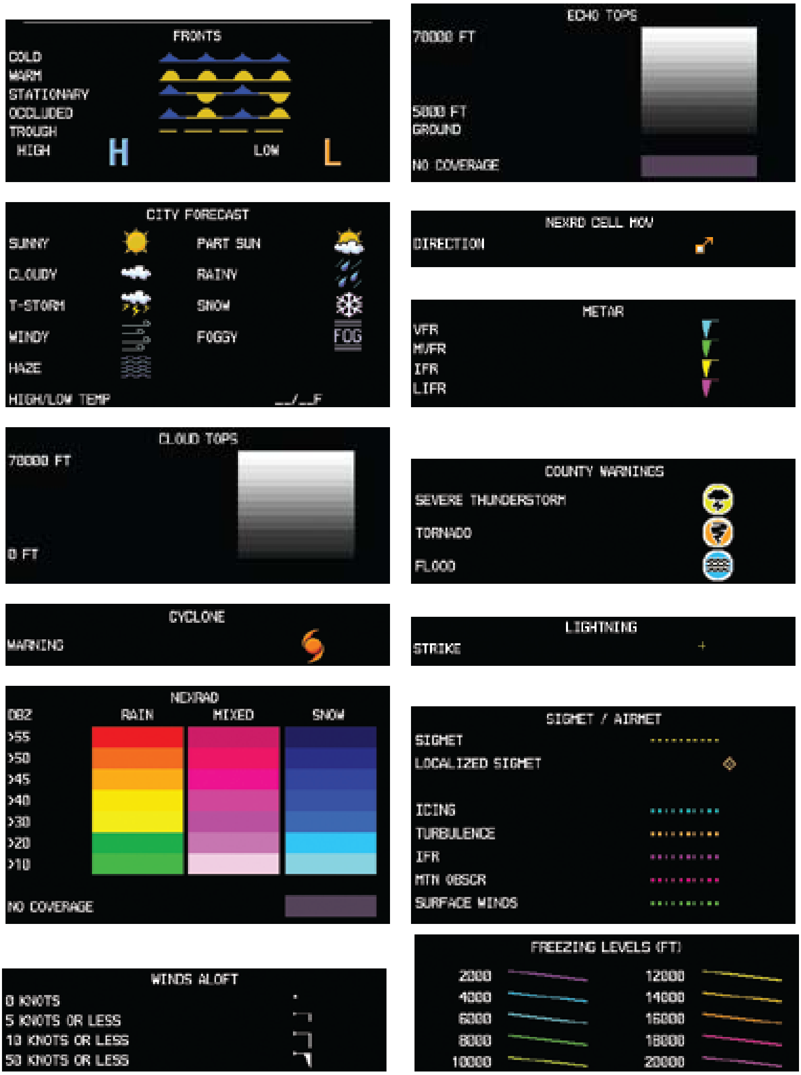

FRONTS
COLD
WARM
STATIONARY
OCCLUDED
TROUGH
HIGH
H
LOW
L
ECHO TOPS
70000 FT
5000 FT
GROUND
NO COVERAGE
CITY FORECAST
SUNNY
PART SUN
CLOUDY
RAINY
T-STORM
SNOW
WINDY
FOGGY
FOG
HAZE
HIGH/LOW TEMP
__/__F
NEXRD CELL MOV
DIRECTION
METAR
VFR
MVFR
IFR
LIFR
CLOUD TOPS
70000 FT
0 FT
COUNTY WARNINGS
SEVERE THUNDERSTORM
TORNADO
FLOOD
CYCLONE
WARNING
LIGHTNING
STRIKE
NEXRAD
DBZ
RAIN
MIXED
SNOW
>55
>50
>45
>40
>30
>20
>10
NO COVERAGE
SIGMET / AIRMET
SIGMET
LOCALIZED SIGMET
ICING
TURBULENCE
IFR
MTN OBSCR
SURFACE WINDS
FREEZING LEVELS (FT)
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
WINDS ALOFT
0 KNOTS
5 KNOTS OR LESS
10 KNOTS OR LESS
50 KNOTS OR LESS

Figure 4-31 Weather Legends

2) An abbreviated legend may be displayed on the upper right side of a WX Data Link Map page for the applicable weather products when selected in the Page Menu options for Weather.

### 4.8.5 NEXRAD

WSR-88D, or NEXRAD (NEXt-generation RADar), is a network of 158 high-resolution Doppler radar systems that are operated by the National Weather Service (NWS). NEXRAD data provides centralized meteorological information for the continental United States and selected overseas locations. The maximum range of a single NEXRAD radar site is 250 NM. The NEXRAD network provides important information about severe weather for air traffic safety.

NEXRAD data is not real-time. The lapsed time between collection, processing, and dissemination of NEXRAD images can be significant and may not reflect the current radar synopsis. Due to the inherent delays and the relative age of the data, it should be used for long-range planning purposes only. Never use NEXRAD data or any radar data to penetrate hazardous weather. Instead, use it in an early-warning capacity of pre-departure and en route evaluation.

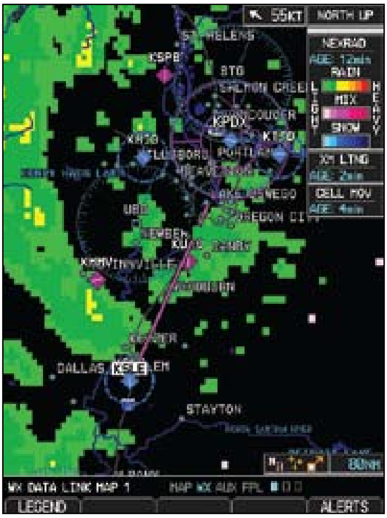
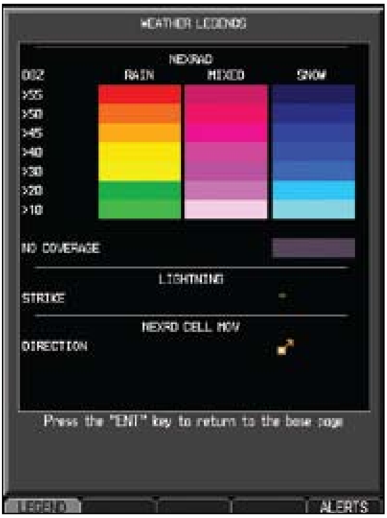

55KT
NORTH UP
NEXRAD
AGE 12min
RAIN
LIGHT
HEAVY
MIX
SNOW
XM LTNG
AGE 2min
CELL MOV
AGE 4min
ST HELENS
KSPB
STO
SALMON CREEK
VANCOUVER
KPDX
KTTD
HILLSBORO
PORTLAND
LAKE OSWEGO
OREGON CITY
NEWBERG
UBG
MCMINNVILLE
WOODBURN
DALLAS
KSLE
SALEM
STAYTON
80NM
WX DATA LINK MAP 1
MAP WX AUX FPL
LEGEND
ALERTS

Figure 4-32  XM Weather - NEXRAD

Composite data from all the NEXRAD radar sites in the United States is shown. This data is composed of the maximum reflectivity from the individual radar sweeps. The display of the information is color-coded to indicate the weather severity level. All weather product legends can be viewed on the Weather Data

Link Page. For the NEXRAD legend, select the **LEGEND** soft key when NEXRAD is selected for display.



Press the "ENT" key to return to the base page

Figure 4-33  NEXRAD Weather Legend

The display of radar coverage is always active when either NEXRAD or ECHO TOPS is selected. Areas where NEXRAD radar coverage and Echo Tops information is not currently available or is not being collected are indicated in grayish-purple.

### 4.8.5.1 Reflectivity

Reflectivity is the amount of transmitted power returned to the radar receiver. Colors on the NEXRAD display directly correlate to the level of detected reflectivity. Reflectivity as it relates to hazardous weather can be very complex.

The role of radar is essentially to detect moisture in the atmosphere. Simply put, certain types of weather reflect radar better than others. The intensity of a radar reflection is not necessarily an indication of the weather hazard level. For instance, wet hail returns a strong radar reflection, while dry hail does not. Both wet and dry hail can be extremely hazardous.

The different NEXRAD echo intensities are measured in decibels (dB) relative to reflectivity (Z). NEXRAD measures the radar reflectivity ratio, or the energy reflected back to the radar receiver (designated by the letter Z). The value of Z increases as the returned signal strength increases.

### 4.8.5.2 NEXRAD Limitations

NEXRAD radar images may have certain limitations:

- NEXRAD base reflectivity does not provide sufficient information to determine cloud layers or precipitation characteristics. For example, it is not possible to distinguish between wet snow, wet hail, and rain.
- NEXRAD base reflectivity is sampled at the minimum antenna elevation angle. An individual NEXRAD site cannot depict high altitude storms at close ranges. It has no information about storms directly over the site.
- When zoomed in to a range of 30 NM, each square block on the display represents an area of four square kilometers. The intensity level reflected by each square represents the highest level of NEXRAD data sampled within the area.

The following may cause abnormalities in displayed NEXRAD radar images:

- Ground clutter
- Strobes and spurious radar data
- Sun strobes (when the radar antenna points directly at the sun)
- Interference from buildings or mountains, which may cause shadows
- Metallic dust from military aircraft, which can cause alterations in radar scans

## 4.8.6 Weather Page Map Orientation

The Orientation option sets the orientation of the Wx Data Link Map pages.

1) While viewing the Wx Data Link Map 1, 2, or 3 of the Wx page group, press the **MENU** key. With "Weather Setup" highlighted, press **ENT**.

2) With the "Map Orientation" option active, turn the small **MFD** knob to change the highlighted value.

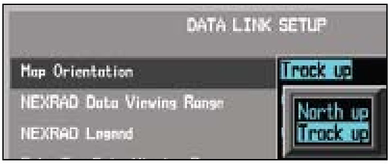

DATA LINK SETUP
Map Orientation
Track up
NEXRAD Data Viewing Range
NEXRAD Legend
North up
Track up

Figure 4-34 Weather Page Map Orientation

3) Press **ENT** to accept the displayed value. The next option will be highlighted.

4) Press the small **MFD** knob to cancel selection or to end editing and return to the Navigation Map page or turn the large **MFD** knob to the next option.

## 4.8.7 NEXRAD Data Viewing Range

The NEXRAD Viewing Range option allows you to select the map range where at and below the selected value NEXRAD weather products will be shown on the selected MFD Wx Data Link Map page (1, 2, or 3). When Off is selected, NEXRAD weather data will not be shown. In the figure below where 300 NM is selected, NEXRAD data will be shown at map ranges of 300 NM and lower.

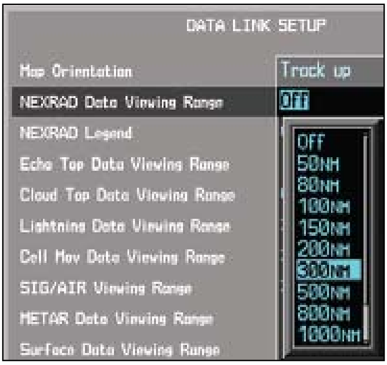

DATA LINK SETUP
Map Orientation
Track up
NEXRAD Data Viewing Range
Off
NEXRAD Legend
Echo Top Data Viewing Range
Cloud Top Data Viewing Range
Lightning Data Viewing Range
Cell Mov Data Viewing Range
SIG/AIR Viewing Range
METAR Data Viewing Range
Surface Data Viewing Range
Off
50NM
80NM
100NM
150NM
200NM
300NM
500NM
800NM
1000NM

Figure 4-35 NEXRAD Viewing Range Selection

1) While viewing a WX Data Link Map page of the WX page group, press the **MENU** key to display the Page Menu Options. The cursor flashes on the "Weather Setup" option. Press **ENT.**

2) The NEXRAD Data Viewing Range value will be highlighted. Turn the small **MFD** knob to highlight the desired value.

3) Press **ENT** to accept the displayed value. The next option will be highlighted.

4) Press the small **MFD** knob to cancel selection or to end editing and return to the Navigation Map page or turn the large **MFD** knob to the next option.

## 4.8.8 NEXRAD Legend

The NEXRAD Legend selection provides the option of displaying an abbreviated version of the NEXRAD legend in the top right region of the MFD. The full legend is available by pressing the **LEGEND** soft key.

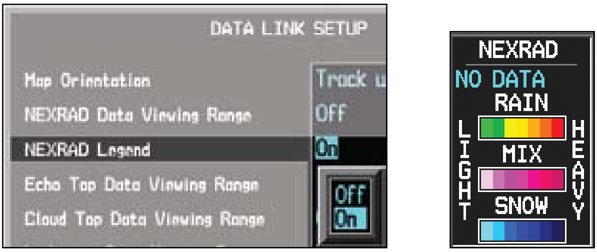

DATA LINK SETUP
Map Orientation
Track u
NEXRAD Data Viewing Range
OFF
NEXRAD Legend
On
Echo Top Data Viewing Range
Cloud Top Data Viewing Range
OFF
On
NEXRAD
NO DATA
RAIN
LIGHT
HEAVY
MIX
SNOW

Figure 4-36 NEXRAD Legend Selection

1) While viewing a WX Data Link Map page of the WX page group, press the **MENU** key to display the Page Menu Options. The cursor flashes on the "Weather Setup" option. Press **ENT.**

2) Turn the large **MFD** knob to highlight the NEXRAD Legend value.

3) Turn the small **MFD** knob to highlight Off or On. Press **ENT** to accept the displayed value. The next option will be highlighted.

4) Press the small **MFD** knob to cancel selection or to end editing and return to the Navigation Map page or turn the large **MFD** knob to the next option.

## 4.8.9 Echo Tops

***NOTE:** Due to similarities in color schemes, the display of Echo Tops is mutually exclusive with Cloud Tops and NEXRAD.*

Echo Tops data shows the location, elevation, and direction of the highest radar echo. The highest radar echo does not indicate the top of a storm or clouds; rather it indicates the highest altitude at which precipitation is detected. Information is derived from NEXRAD data.

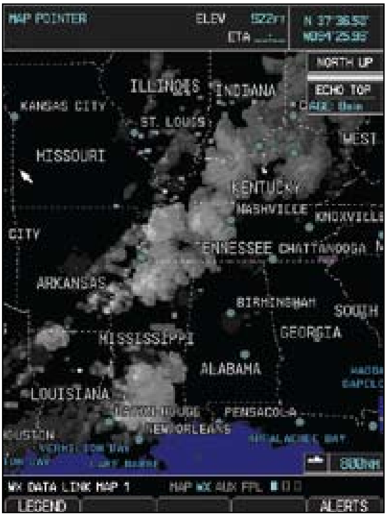
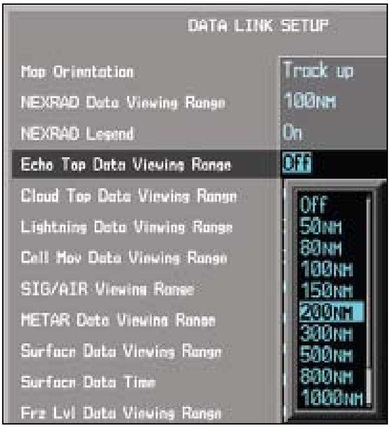

MAP POINTER
ELEV 522FT
ETA
N 37°36.52'
W091°25.86'
NORTH UP
ECHO TOP
WEST
ILLINOIS
INDIANA
KANSAS CITY
ST. LOUIS
MISSOURI
KENTUCKY
NASHVILLE
KNOXVILLE
CITY
TENNESSEE
CHATTANOOGA
ARKANSAS
BIRMINGHAM
SOUTH
GEORGIA
MISSISSIPPI
ALABAMA
LOUISIANA
PENSACOLA
NEW ORLEANS
HOUSTON
800NM
WX DATA LINK MAP 1
MAP WX AUX FPL
LEGEND
ALERTS

**Figure 4-37 XM Weather - Echo Tops**

The display of radar coverage is always active when either NEXRAD or ECHO TOPS is selected. Areas where NEXRAD radar coverage and Echo Tops information is not currently available or is not being collected are indicated in grayish-purple. Radar capability exists in these areas, but it is not active or is off-line.

## Echo Top Data Viewing Range

The Echo Top Data Viewing Range option allows you to select the map range where at and below that value Echo Top weather products will be shown on the selected MFD Wx Data Link Map page (1, 2, or 3). When Off is selected, Echo Tops will not be shown. In the figure below where 200 NM is selected, Echo Top data will be shown at map ranges of 200 NM and lower.



DATA LINK SETUP

Map Orientation Track up
NEXRAD Data Viewing Range 100NM
NEXRAD Legend On
Echo Top Data Viewing Range Off
Cloud Top Data Viewing Range
Lightning Data Viewing Range
Cell Mov Data Viewing Range
SIG/AIR Viewing Range
METAR Data Viewing Range
Surface Data Viewing Range
Surface Data Time
Frz Lvl Data Viewing Range

**Figure 4-38  Echo Top Viewing Range Selection**

1) While viewing a WX Data Link Map page of the WX page group, press the **MENU** key to display the Page Menu Options. The cursor flashes on the “Weather Setup” option. Press **ENT.**

2) Turn the large **MFD** knob to highlight the Echo Top Data Viewing Range value.

3) Turn the small **MFD** knob to highlight the desired value. Press **ENT** to accept the displayed value. The next option will be highlighted.

4) Press the small **MFD** knob to cancel selection or to end editing and return to the Navigation Map page or turn the large **MFD** knob to the next option.

## 4.8.10 Cloud Tops

***NOTE:** Due to similarities in color schemes, the display of Cloud Tops is mutually exclusive with Echo Tops and NEXRAD.*

Cloud Tops data depicts cloud top altitudes as determined from satellite imagery.

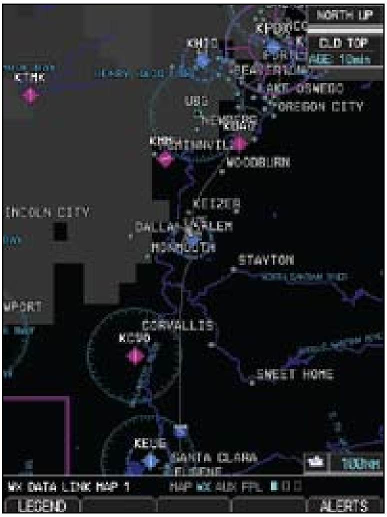
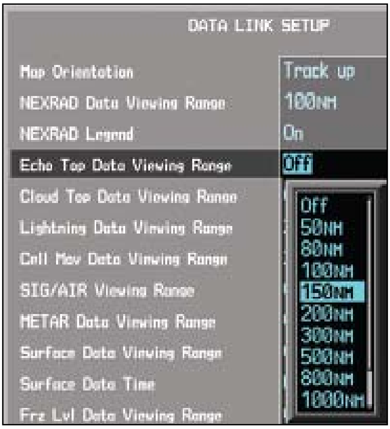

NORTH UP
CLD TOP
AGE: 10min
KHIO
CTMK
USG
OREGON CITY
WOODBURN
KEIZER
INCOLN CITY
DALLAS
SALEM
MONMOUTH
STAYTON
WPORT
CORVALLIS
KCVO
SWEET HOME
KEUG
SANTA CLARA
EUGENE
100NM
WX DATA LINK MAP 1
MAP WX AUX FPL
LEGEND
ALERTS

**Figure 4-39 XM Weather - Cloud Tops**

To display the Cloud Tops legend, select the **LEGEND** soft key when Cloud Tops is selected for display. Since Cloud Tops and Echo Tops use the same color scaling to represent altitude, display of these weather products is mutually exclusive. When Cloud Tops is activated, Echo Tops or NEXRAD data is not shown.

## Cloud Top Data Viewing Range

The Cloud Top Data Viewing Range option allows you to select the map range where at and below that value Cloud Top weather products will be shown on the selected MFD Wx Data Link Map page (1, 2, or 3). When Off is selected, Cloud Tops will not be shown. In the figure below where 150 NM is selected, Cloud Top data will be shown at map ranges of 150 NM and lower.



DATA LINK SETUP
Map Orientation Track up
NEXRAD Data Viewing Range 100NM
NEXRAD Legend On
Echo Top Data Viewing Range Off
Cloud Top Data Viewing Range
Lightning Data Viewing Range
Cell Mov Data Viewing Range
SIG/AIR Viewing Range
METAR Data Viewing Range
Surface Data Viewing Range
Surface Data Time
Frz Lvl Data Viewing Range

Figure 4-40  Cloud Top Viewing Range Selection

## 4.8.11 XM Lightning

Lightning data shows the approximate location of cloud-to-ground lightning strikes. A strike icon represents a strike that has occurred within a two-kilometer region. The exact location of the lightning strike is not displayed.

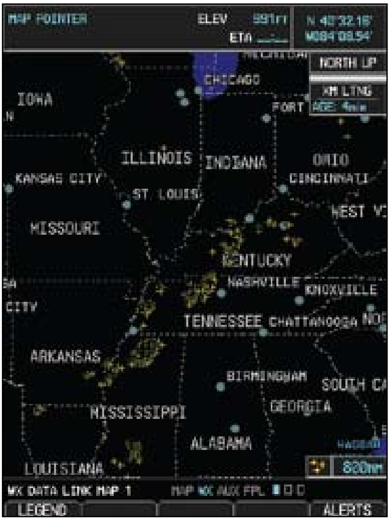
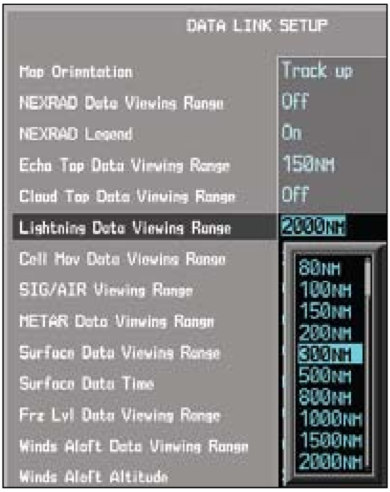

MAP POINTER
ELEV 991FT
ETA
N 40°32.16'
W084°08.54'
NORTH UP
XM LTNG
AGE 4min
CHICAGO
IOWA
FORT
ILLINOIS
INDIANA
OHIO
CINCINNATI
KANSAS CITY
ST. LOUIS
WEST V
MISSOURI
KENTUCKY
NASHVILLE
KNOXVILLE
CITY
TENNESSEE
CHATTANOOGA
ARKANSAS
BIRMINGHAM
SOUTH CA
MISSISSIPPI
GEORGIA
ALABAMA
LOUISIANA
800NM
WX DATA LINK MAP 1
MAP WX AUX FPL
LEGEND
ALERTS

Figure 4-41 XM Weather - Lightning


DATA LINK SETUP

| | |
|---|---|
| Map Orientation | Track up |
| NEXRAD Data Viewing Range | OFF |
| NEXRAD Legend | On |
| Echo Top Data Viewing Range | 150NM |
| Cloud Top Data Viewing Range | OFF |
| Lightning Data Viewing Range | 2000NM |
| Cell Mov Data Viewing Range | |
| SIG/AIR Viewing Range | |
| METAR Data Viewing Range | |
| Surface Data Viewing Range | |
| Surface Data Time | |
| Frz Lvl Data Viewing Range | |
| Winds Aloft Data Viewing Range | |
| Winds Aloft Altitude | |

80NM
100NM
150NM
200NM
300NM
500NM
800NM
1000NM
1500NM
2000NM

Figure 4-42
Lightning Viewing Range Selection

### Lightning Data Viewing Range

The Lightning Data Viewing Range option allows you to select the map range where at and below that value Lightning weather products will be shown on the selected MFD Wx Data Link Map page (1, 2, or 3). When Off is selected, Lightning will not be shown. In the figure above where 300 NM is selected, NEXRAD data will be shown at map ranges of 300 NM and lower.

## 4.8.12 Cell Movement

Cell Movement data shows the location and movement of storm cells as identified by a ground-based system. Cells are represented by yellow squares, with direction of movement indicated with short, orange arrows.

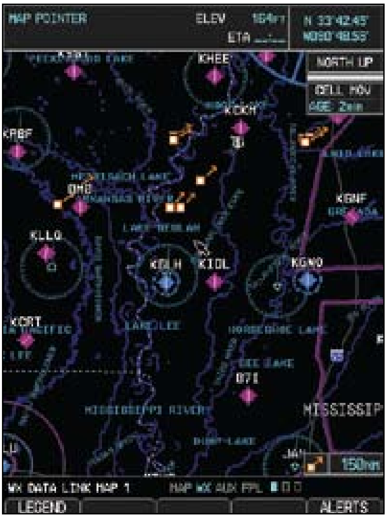
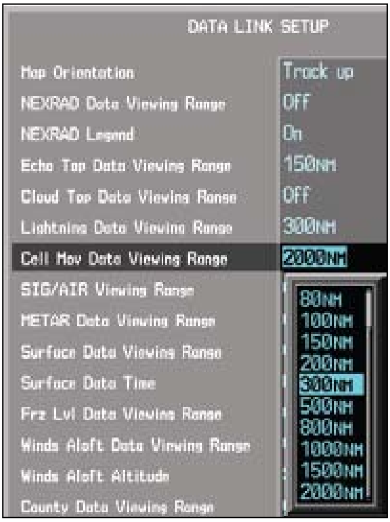

MAP POINTER
ELEV 164FT
ETA
N 33°42.45'
W090°48.53'
NORTH UP
CELL MOV
AGE 2min
KHEE
KCKM
KRBF
OHO
KLLQ
KGLH
KIDL
KGWO
KGNF
KORT
B71
MISSISSIP
MISSISSIPPI RIVER
150nm
WX DATA LINK MAP 1
MAP WX AUX FPL
LEGEND
ALERTS

Figure 4-43 XM Weather - Cell Movement

On most applicable maps, Cell Movement data is selected for display along with NEXRAD. On the Weather Data Link Page, Cell Movement data can be selected independently.

## Cell Movement Data Viewing Range

The Cell Movement Data Viewing Range option allows you to select the map range and below where Cell Movement weather products will appear on the selected MFD Wx Data Link Map page (1, 2, or 3). When Off is selected, Cell Movement will not be shown. In the figure below where 300 NM is selected, Cell Movement data will be shown at map ranges of 300 NM and lower.



DATA LINK SETUP

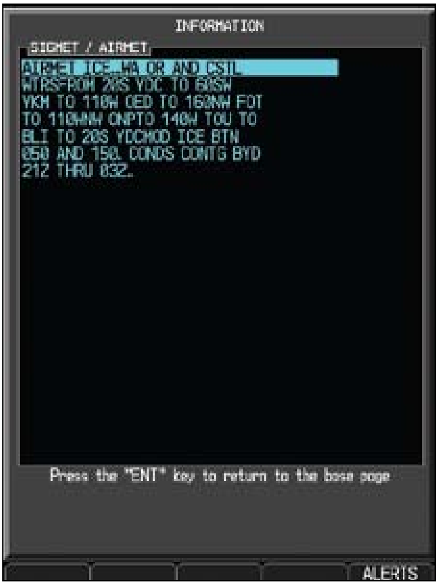
Map Orientation Track up
NEXRAD Data Viewing Range OFF
NEXRAD Legend On
Echo Top Data Viewing Range 150NM
Cloud Top Data Viewing Range Off
Lightning Data Viewing Range 300NM
Cell Mov Data Viewing Range 2000NM
SIG/AIR Viewing Range
METAR Data Viewing Range
Surface Data Viewing Range
Surface Data Time
Frz Lvl Data Viewing Range
Winds Aloft Data Viewing Range
Winds Aloft Altitude
County Data Viewing Range

Figure 4-44 Cell Movement Viewing Range Selection

## 4.8.13 SIGMETs and AIRMETs

SIGMETs (SIGnificant METeorological Information) and AIRMETs (AIRmen's METeorological Information) are broadcast for potentially hazardous weather considered of importance to aircraft. A Convective SIGMET is issued for hazardous convective weather. A localized SIGMET is a significant weather condition occurring at a localized geographical position.

When enabled, SIGMET/AIRMETs advise the pilot of potentially hazardous weather to all aircraft. SIGMET/AIRMET data covers icing, turbulence, dust, and volcanic ash as issued by the National Weather Service. The update rate is every 12 minutes.



```
AIRMET ICE..WA OR AND CSTL
WTRSFROM 20S YDC TO 60SW
YKM TO 110W OED TO 160NW FOT
TO 110WNW ONPTO 140W TOU TO
BLI TO 20S YDCMOD ICE BTN
050 AND 150. CONDS CONTG BYD
212 THRU 032.
```

Press the "ENT" key to return to the base page

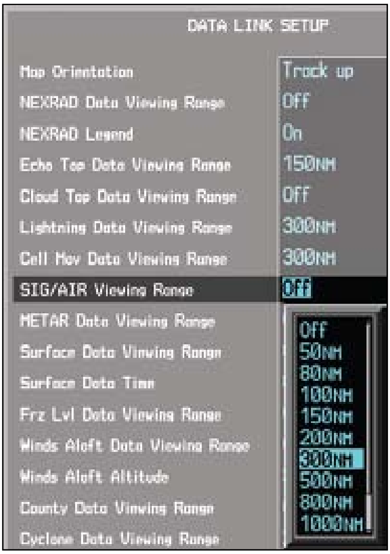
Figure 4-45  XM Weather - AIRMETs

When enabled, the following AIRMETs are available for display:

- Icing
- Turbulence
- IFR conditions
- Mountain obscuration
- Surface winds

## SIGMET/AIRMET Viewing Range

The SIGMET/AIRMET Viewing Range option allows you to select the map range where at and below that value SIGMET/AIRMET products will be shown on the selected MFD Wx Data Link Map page (1, 2, or 3). When Off is selected, SIGMET/AIRMET will not be shown. In the figure below where 300 NM is selected, SIGMET/AIRMET data will be shown at map ranges of 300 NM and lower.



DATA LINK SETUP

| | |
|---|---|
| Map Orientation | Track up |
| NEXRAD Data Viewing Range | Off |
| NEXRAD Legend | On |
| Echo Top Data Viewing Range | 150NM |
| Cloud Top Data Viewing Range | Off |
| Lightning Data Viewing Range | 300NM |
| Cell Mov Data Viewing Range | 300NM |
| SIG/AIR Viewing Range | Off |
| METAR Data Viewing Range | |
| Surface Data Viewing Range | |
| Surface Data Time | |
| Frz Lvl Data Viewing Range | |
| Winds Aloft Data Viewing Range | |
| Winds Aloft Altitude | |
| County Data Viewing Range | |
| Cyclone Data Viewing Range | |

Figure 4-46 SIGMET/AIRMET Viewing Range Selection

## 4.8.14 METARs

***NOTE:** Atmospheric pressure reported for METARs is given in hectopascals (hPa), except in the United States, where it is reported in inches of mercury (in Hg). Temperatures are reported in Celsius.*

***NOTE:** METAR information is only displayed within the installed aviation database service area.*

METAR (METeorological Aerodrome Report), known as an Aviation Routine Weather Report, is the standard format for current weather observations. METARs are updated hourly and are considered current. METARs typically contain information about the temperature, dew point, wind, precipitation, cloud cover, cloud heights, visibility, and barometric pressure. They can also contain information on precipitation amounts, lightning, and other critical data. METARs are shown as colored flags at airports that provide them.

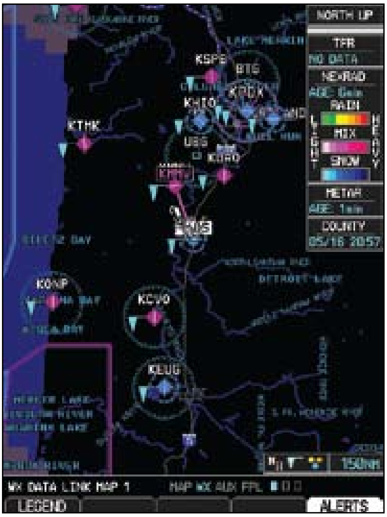
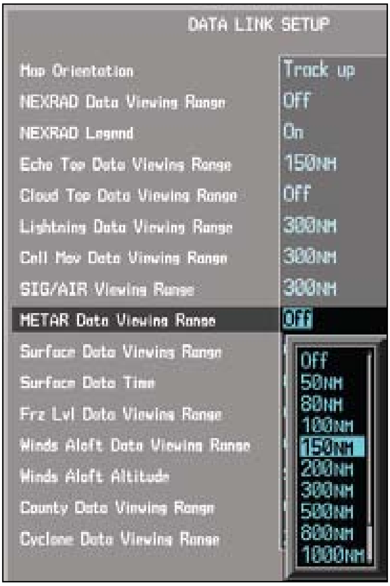

NORTH UP
TFR
NO DATA
NEXRAD
AGE 6min
RAIN
MIX
SNOW
LIGHT
HEAVY
METAR
AGE 1min
COUNTY
05/16 2057
KSPB
BTG
KHIO
KPDX
KTMK
UBG
KUAO
KMMV
KONP
KCVO
KEUG
150NM
WX DATA LINK MAP 1
MAP WX AUX FPL
LEGEND
ALERTS

Figure 4-47 XM Weather - Graphic METARs

## METAR Viewing Range

The METAR Viewing Range option allows you to select the map range where at and below that value METAR weather products will be shown on the selected MFD Wx Data Link Map page (1, 2, or 3). When Off is selected, METARs will not be shown. In the figure below where 150 NM is selected, METAR data will be shown at map ranges of 150 NM and lower.



DATA LINK SETUP

Map Orientation Track up
NEXRAD Data Viewing Range Off
NEXRAD Legend On
Echo Top Data Viewing Range 150NM
Cloud Top Data Viewing Range Off
Lightning Data Viewing Range 300NM
Cell Mov Data Viewing Range 300NM
SIG/AIR Viewing Range 300NM
METAR Data Viewing Range Off
Surface Data Viewing Range
Surface Data Time
Frz Lvl Data Viewing Range
Winds Aloft Data Viewing Range
Winds Aloft Altitude
County Data Viewing Range
Cyclone Data Viewing Range

Figure 4-48 METAR Viewing Range Selection

## 4.8.15 Surface Analysis and City Forecast

***NOTE:** Surface Analysis and City Forecast data are displayed only within the installed Aviation Database service area.*

Surface Analysis and City Forecast information is available for current and forecast weather conditions. Forecasts are available for intervals of 12, 24, 36, and 48 hours by pressing the **SRFC TIME** soft key or in the Page Menu Weather Setup options.

When enabled, the Surface Analysis forecast shows frontal lines indicating weather fronts and the direction they are moving. High and Low pressure centers are noted with a large H or L. The Forecast Time menu item will step through the intervals manually.

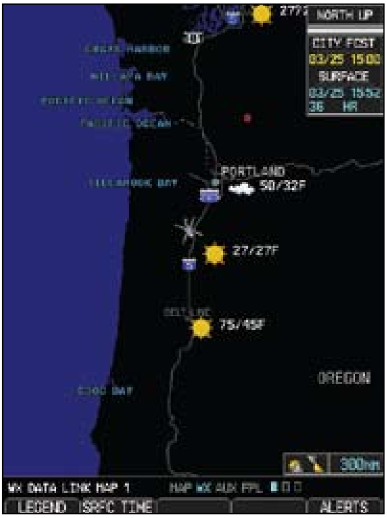

NORTH UP
CITY FCST
03/25 15:00
SURFACE
03/25 15:52
36 HR
PORTLAND
50/32F
27/27F
75/49F
OREGON
300nm
WX DATA LINK MAP 1
MAP WX AUX FPL
LEGEND
SRFC TIME
ALERTS

**Figure 4-49 XM Weather - Surface Analysis and City Forecast**

A Cold Front is a front where cold air replaces warm air. A blue line with blue triangles that point in the direction of the cold air flow.

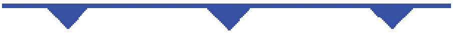


**Figure 4-50 XM Weather - Cold Front**

A Warm Front is where warm air replaces cold air. An orange line with orange half moons that point in the direction of the warm air flow.

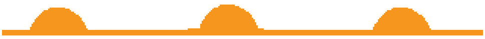


**Figure 4-51 XM Weather - Warm Front**

A Stationary Front is a front with very little horizontal movement. The line alternates with orange and blue sections which point in opposite directions to symbolize little movement.

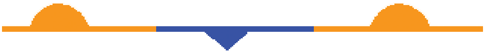


Figure 4-52  XM Weather - Stationary Front

An Occluded Front is where a cold front has overtaken and merged with a warm front. The line alternates with the blue triangle and orange half moon symbols on the same side of the line pointing in the direction the front is moving.

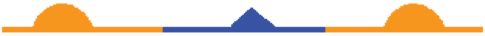
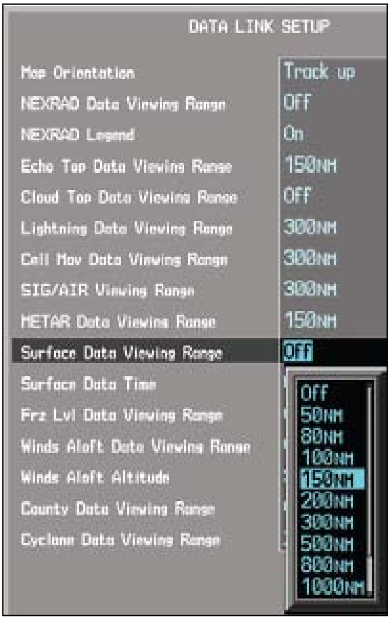


Figure 4-53  XM Weather - Occluded Front

## Surface Data Viewing Range

The Surface Data Viewing Range option allows you to select the map range where at and below that value Surface Data weather products will be shown on the selected MFD Wx Data Link Map page (1, 2, or 3). When Off is selected, Surface Data will not be shown. In the figure below where 150 NM is selected, Surface data will be shown at map ranges of 150 NM and lower.



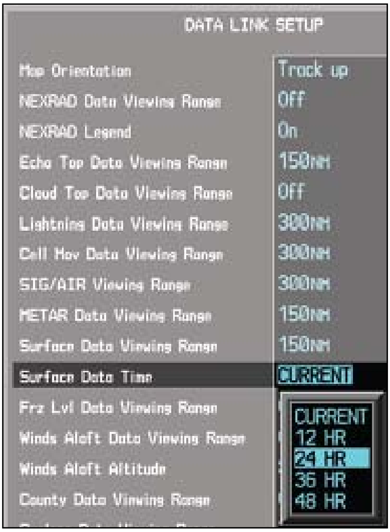
DATA LINK SETUP

| | |
|---|---|
| Map Orientation | Track up |
| NEXRAD Data Viewing Range | Off |
| NEXRAD Legend | On |
| Echo Top Data Viewing Range | 150NM |
| Cloud Top Data Viewing Range | Off |
| Lightning Data Viewing Range | 300NM |
| Cell Mov Data Viewing Range | 300NM |
| SIG/AIR Viewing Range | 300NM |
| METAR Data Viewing Range | 150NM |
| Surface Data Viewing Range | Off |
| Surface Data Time | |
| Frz Lvl Data Viewing Range | |
| Winds Aloft Data Viewing Range | |
| Winds Aloft Altitude | |
| County Data Viewing Range | |
| Cyclone Data Viewing Range | |

Figure 4-54  Surface data Viewing Range Selection

## Surface Data Time

The Surface Data Time option allows you to select the forecast time when the Surface and City Forecast weather products will appear on the selected MFD Wx Data Link Map page (1, 2, or 3). Forecasts are available for intervals of current, 12, 24, 36, and 48 hours. You may also select an interval by pressing the **SRFC TIME** soft key on the Wx Data Link Map page.



DATA LINK SETUP

| | |
|---|---|
| Map Orientation | Track up |
| NEXRAD Data Viewing Range | Off |
| NEXRAD Legend | On |
| Echo Top Data Viewing Range | 150NM |
| Cloud Top Data Viewing Range | Off |
| Lightning Data Viewing Range | 300NM |
| Cell Mov Data Viewing Range | 300NM |
| SIG/AIR Viewing Range | 300NM |
| METAR Data Viewing Range | 150NM |
| Surface Data Viewing Range | 150NM |
| Surface Data Time | CURRENT |
| Frz Lvl Data Viewing Range | |
| Winds Aloft Data Viewing Range | |
| Winds Aloft Altitude | |
| County Data Viewing Range | |

Figure 4-55  Surface Data Time Selection

## 4.8.16 Freezing Level

Freezing Level data shows the color-coded contour lines for the altitude and location at which the Freezing Level is found. When no data is displayed for a given altitude, the data for that altitude has not been received, or is out of date and has been removed from the display. New data appears at the next update.

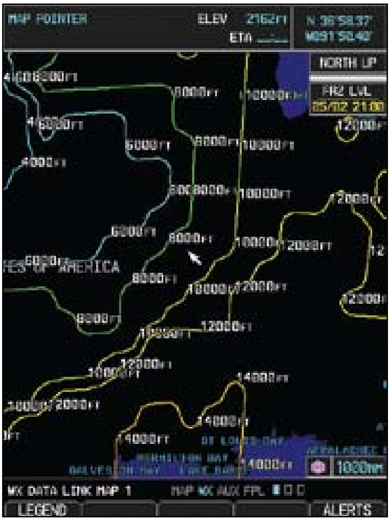
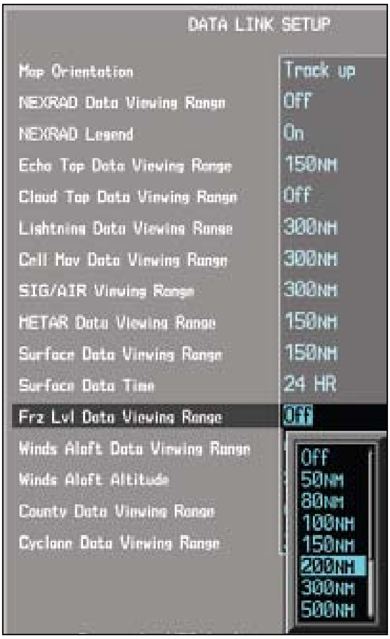

MAP POINTER
ELEV 2162FT
ETA
N 38°58.37'
W091°50.40'
NORTH UP
FRZ LVL
05/02 21:00
6000FT
8000FT
10000FT
12000FT
14000FT
1000NM
WX DATA LINK MAP 1
MAP WX AUX FPL
LEGEND
ALERTS

Figure 4-56 XM Weather - Freezing Levels

## Freezing Level Viewing Range

The Freezing Level Viewing Range option allows you to select the map range where at and below that value Freezing Level weather products will be shown on the selected MFD Wx Data Link Map page (1, 2, or 3). When Off is selected, Freezing Level Data will not be shown. In the figure below where 200 NM is selected, Freezing Level data will be shown at map ranges of 200 NM and lower.



DATA LINK SETUP

| | |
|---|---|
| Map Orientation | Track up |
| NEXRAD Data Viewing Range | Off |
| NEXRAD Legend | On |
| Echo Top Data Viewing Range | 150NM |
| Cloud Top Data Viewing Range | Off |
| Lightning Data Viewing Range | 300NM |
| Cell Mov Data Viewing Range | 300NM |
| SIG/AIR Viewing Range | 300NM |
| METAR Data Viewing Range | 150NM |
| Surface Data Viewing Range | 150NM |
| Surface Data Time | 24 HR |
| Frz Lvl Data Viewing Range | Off |
| Winds Aloft Data Viewing Range | |
| Winds Aloft Altitude | |
| County Data Viewing Range | |
| Cyclone Data Viewing Range | |

Figure 4-57  Freezing Level Viewing Range Selection

## 4.8.17 Winds Aloft

Winds Aloft data shows the forecast wind speed and direction at the surface and at selected altitudes. Altitudes can be selected in 3000 foot increments from the surface up to 42,000 feet MSL. Pressing the **WIND DOWN** or **WIND UP** soft keys steps down or up in 3,000 foot increments.

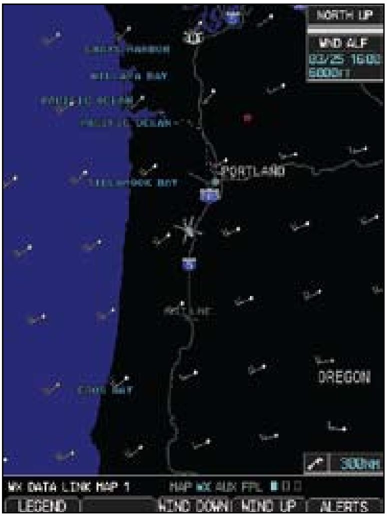
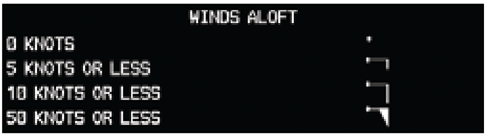

NORTH UP
WND ALF
03/25 16:00
6000FT
GRAYS HARBOR
WILLAPA BAY
PACIFIC OCEAN
PACIFIC OCEAN
PORTLAND
TILLAMOOK BAY
OREGON
COOS BAY
300NM
WX DATA LINK MAP 1
MAP WX AUX FPL
LEGEND
WIND DOWN
WIND UP
ALERTS

Figure 4-58 XM Weather - Winds Aloft



WINDS ALOFT

0 KNOTS

5 KNOTS OR LESS

10 KNOTS OR LESS

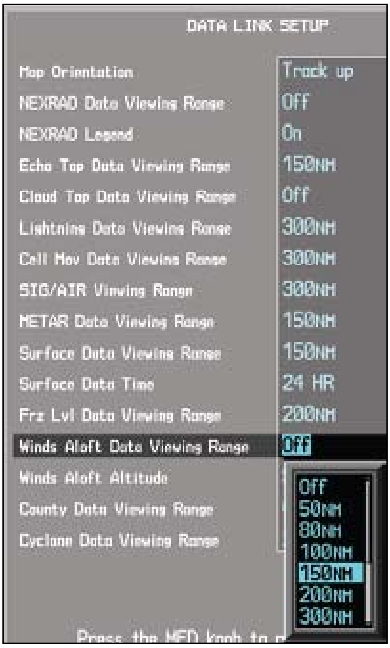
50 KNOTS OR LESS

Figure 4-59 XM Weather - Winds Aloft Legend

Foreword
Sec 1 System
Sec 2 PFD
Sec 3 MFD
Sec 4 Hazard Avoidance
Sec 5 Additional Features
Sec 6 Annun. & Alerts
Sec 7 Symbols
Sec 8 Glossary
Appendix A
Appendix B Index

## Winds Aloft Data Viewing Range

The Winds Aloft Data Viewing Range option allows you to select the map range where at and below that value Winds Aloft weather products will appear on the selected MFD Wx Data Link Map page (1, 2, or 3). When Off is selected, Winds Aloft will not be shown. In the figure below where 150 NM is selected, Winds Aloft data will be shown at map ranges of 150 NM and lower.



DATA LINK SETUP

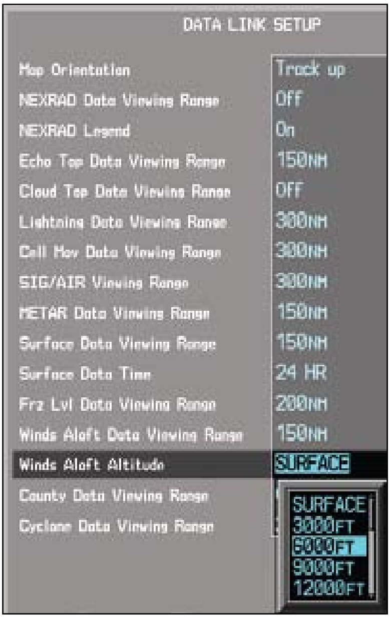
| | |
|---|---|
| Map Orientation | Track up |
| NEXRAD Data Viewing Range | Off |
| NEXRAD Legend | On |
| Echo Top Data Viewing Range | 150NM |
| Cloud Top Data Viewing Range | Off |
| Lightning Data Viewing Range | 300NM |
| Cell Mov Data Viewing Range | 300NM |
| SIG/AIR Viewing Range | 300NM |
| METAR Data Viewing Range | 150NM |
| Surface Data Viewing Range | 150NM |
| Surface Data Time | 24 HR |
| Frz Lvl Data Viewing Range | 200NM |
| Winds Aloft Data Viewing Range | Off |
| Winds Aloft Altitude | |
| County Data Viewing Range | |
| Cyclone Data Viewing Range | |

Figure 4-60  Winds Aloft Data Viewing Range Selection

## Winds Aloft Altitude

The Winds Aloft Altitude option allows you to select the altitude where at and below that value Winds Aloft weather products will be shown on the selected MFD Wx Data Link Map page (1, 2, or 3). Altitude can be selected in 3000 foot increments from the surface up to 42,000 feet MSL.

Pressing the **WIND DOWN** or **WIND UP** soft keys steps down or up in the 3,000 foot increments. In the figure below where 6000 feet is selected, Winds Aloft data will be shown at 6000 feet and lower.


DATA LINK SETUP

| | |
|---|---|
| Map Orientation | Track up |
| NEXRAD Data Viewing Range | Off |
| NEXRAD Legend | On |
| Echo Top Data Viewing Range | 150NM |
| Cloud Top Data Viewing Range | OFF |
| Lightning Data Viewing Range | 300NM |
| Cell Mov Data Viewing Range | 300NM |
| SIG/AIR Viewing Range | 300NM |
| METAR Data Viewing Range | 150NM |
| Surface Data Viewing Range | 150NM |
| Surface Data Time | 24 HR |
| Frz Lvl Data Viewing Range | 200NM |
| Winds Aloft Data Viewing Range | 150NM |
| Winds Aloft Altitude | SURFACE |
| County Data Viewing Range | |
| Cyclone Data Viewing Range | |

Figure 4-61  Winds Aloft Altitude Selection

## 4.8.18 County Warnings

County data provides specific public awareness and protection weather warnings from the National Weather Service (NWS). This can include information on fires, tornadoes, severe thunderstorms, flood conditions, and other natural disasters.

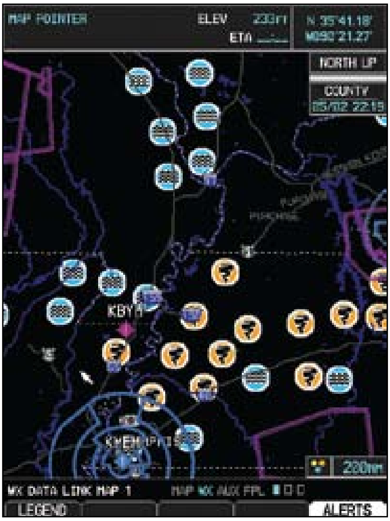
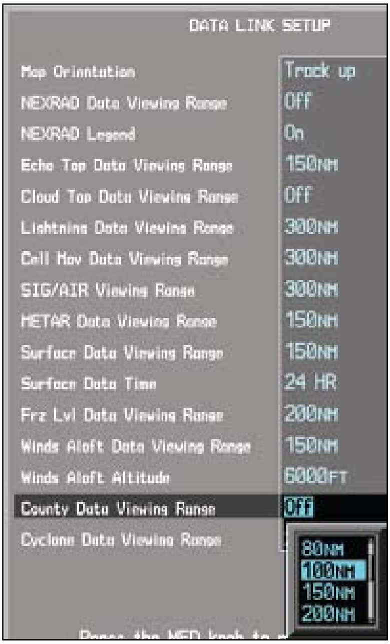

MAP POINTER
ELEV 233FT
ETA ___
N 35°41.18'
W090°21.27'
NORTH UP
COUNTY
05/02 22:15
KBYH
KMEM
200nm
WX DATA LINK MAP 1
MAP WX AUX FPL
LEGEND
ALERTS

Figure 4-62 XM Weather - County Warnings

## County Data Viewing Range

The County Data Viewing Range option allows you to select the map range where at and below that value County weather products will be shown on the selected MFD Wx Data Link Map pages (1, 2, or 3). When Off is selected, County Data will not be shown. In the figure below where 100 NM is selected, County data will be shown at map ranges of 100 NM and lower.



DATA LINK SETUP

| | |
|---|---|
| Map Orientation | Track up |
| NEXRAD Data Viewing Range | Off |
| NEXRAD Legend | On |
| Echo Top Data Viewing Range | 150NM |
| Cloud Top Data Viewing Range | Off |
| Lightning Data Viewing Range | 300NM |
| Cell Mov Data Viewing Range | 300NM |
| SIG/AIR Viewing Range | 300NM |
| METAR Data Viewing Range | 150NM |
| Surface Data Viewing Range | 150NM |
| Surface Data Time | 24 HR |
| Frz Lvl Data Viewing Range | 200NM |
| Winds Aloft Data Viewing Range | 150NM |
| Winds Aloft Altitude | 6000FT |
| County Data Viewing Range | Off |
| Cyclone Data Viewing Range | |

Figure 4-63 County Data Viewing Range Selection

## 4.9 GFDS Weather (Optional)

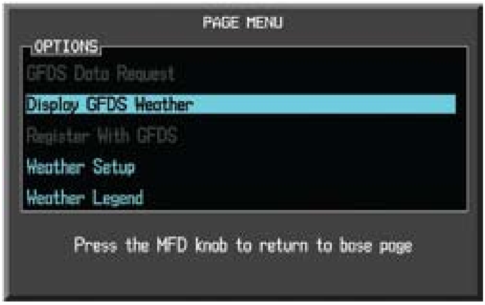
GFDS Weather is an optional feature available with the Iridium® satellite system that is interfaced through the optional Garmin GSR 56. The primary maps for viewing Garmin Flight Data System (GFDS) Weather data are the Weather Data Link Pages in the Map Page Group. These are the only GDU 620 map displays capable of all available GFDS weather products. The Wx Weather pages may be oriented to either Track Up or North Up. Both GFDS and XM Weather may be installed and selected individually. Coverage is available throughout most of Europe, Canada and the U.S. Additional radar coverage areas are being added continuously.

More detail on GFDS weather products and coverage can be found at:

http://fly.garmin.com/fly-garmin/gfds-weather/

***NOTE:** A system can be configured for both XM and GFDS, but both cannot be displayed a the same time.*

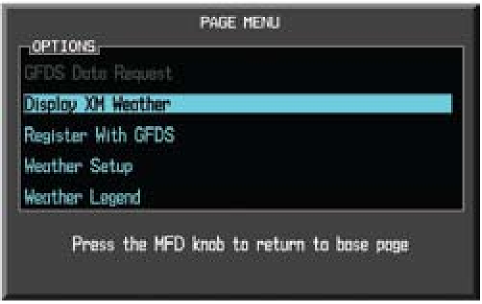
1) While viewing a WX Data Link Map page of the WX page group, press the **MENU** key to display the Page Menu Options. Turn the large **MFD** knob to highlight the "Display GFDS Weather" option. Press **ENT.** This setting will affect the display of data link weather on the map pages as well as the Wx pages.



Press the MFD knob to return to base page

Figure 4-64 Select GFDS Weather

2) Select XM Weather by repeating the process and selecting the XM Weather option.


PAGE MENU
OPTIONS
GFDS Data Request
Display XM Weather
Register With GFDS
Weather Setup
Weather Legend

Press the MFD knob to return to base page

Figure 4-65  Select XM Weather

## 4.9.1 Register With GFDS

### 4.9.1.1 Register With GFDS

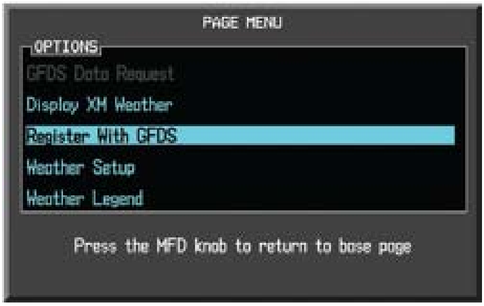
It is necessary to register the GDU with GFDS to utilize the weather products.

1) Call Garmin Customer Service to create a GFDS account. Provide the GDU System ID and airframe info (model, tail number, etc).

2) Customer Service will issue an access code to enter on the GFDS Registration page.

3) While viewing a WX Data Link Map page of the WX page group, press the **MENU** key to display the Page Menu Options.

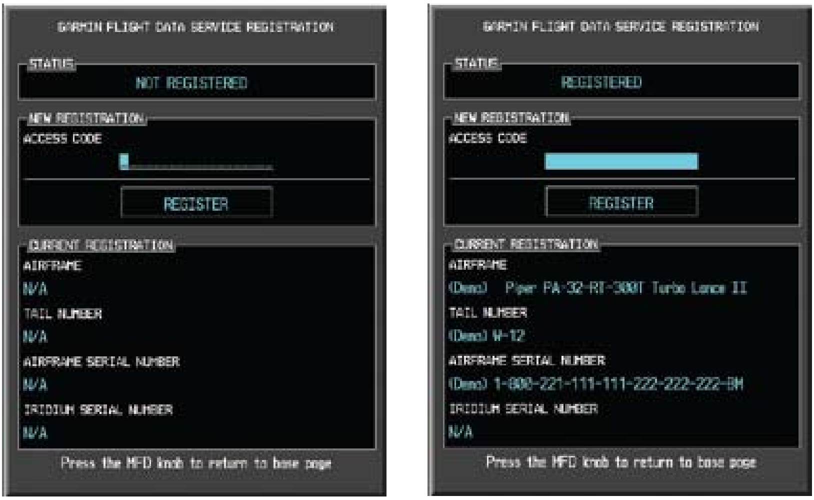
4) Turn the large **MFD** knob to highlight "Register With GFDS." Press **ENT.**


PAGE MENU
OPTIONS
GFDS Data Request
Display XM Weather
Register With GFDS
Weather Setup
Weather Legend

Press the MFD knob to return to base page

Figure 4-66  Select GFDS Registration

5) Turn the small **MFD** knob to select values and the large **MFD** knob to move to the next position. Highlight **REGISTER** and press **ENT** to complete the process. The GDU will contact the GFDS servers using the GSR 56 transceiver. If the access code and system ID are correct, it will download and display the airframe info.



GARMIN FLIGHT DATA SERVICE REGISTRATION

STATUS
NOT REGISTERED

NEW REGISTRATION
ACCESS CODE

REGISTER

CURRENT REGISTRATION
AIRFRAME
N/A
TAIL NUMBER
N/A
AIRFRAME SERIAL NUMBER
N/A
IRIDIUM SERIAL NUMBER
N/A

Press the MFD knob to return to base page

GARMIN FLIGHT DATA SERVICE REGISTRATION

STATUS
REGISTERED

NEW REGISTRATION
ACCESS CODE

REGISTER

CURRENT REGISTRATION
AIRFRAME
(Demo) Piper PA-32-RT-300T Turbo Lance II
TAIL NUMBER
(Demo) W-12
AIRFRAME SERIAL NUMBER
(Demo) 1-800-221-111-111-222-222-222-BM
IRIDIUM SERIAL NUMBER
N/A

Press the MFD knob to return to base page

**Figure 4-67  GFDS Registration Page (Default and Completed)**

### 4.9.1.2 Deactivate Unit Registration With GFDS

Registration of the GDU unit with GFDS can be deactivated so that the unit can no longer make requests to GFDS. This does not cancel the subscription.

1) While viewing a WX Data Link Map page of the WX page group, press the **MENU** key to display the Page Menu Options.

2) Turn the large **MFD** knob to highlight "Register With GFDS." Press **ENT.**

3) With the Access Code field highlighted, press **CLR** to remove the access code.

4) Any weather requests will now fail and the system will no longer be linked to the GFDS account.

## 4.9.2 Using GFDS Satellite Weather Products

When a weather product is active on the Weather Data Link Page or the Navigation Map Page, the age of the data is displayed on the screen. The age of the product is based on the time difference between when the data was assembled on the ground and the current GPS time. Weather products are refreshed at selectable intervals.

If for any reason, a weather product is not refreshed within the 30, 60, 90, or 120 minute Expiration Time intervals, the data is considered expired and is removed from the display. This ensures that the displayed data is consistent with what is currently being broadcast by GFDS Satellite Radio services. If more than half of the expiration time has elapsed from the time the data is received, the color of the product age displayed changes to yellow.

## 4.9.3 Customizing the GFDS Weather Map

Each Wx Data Link Map page may be customized individually. The Wx Data Link Map pages are customized by selecting options from the Page Menu. The Page Menu options include choices for Weather Setup and displaying the Weather Legends. The Weather Setup choice covers selections for adjusting the viewing ranges of the weather products.

1) While viewing a WX Data Link Map page of the WX page group, press the **MENU** key to display the Page Menu Options. Turn the large **MFD** knob to highlight the “Weather Setup” option. Press **ENT.**

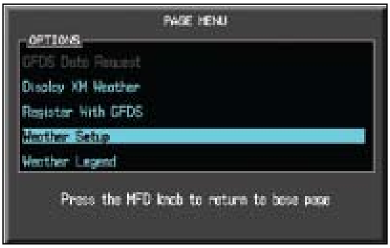
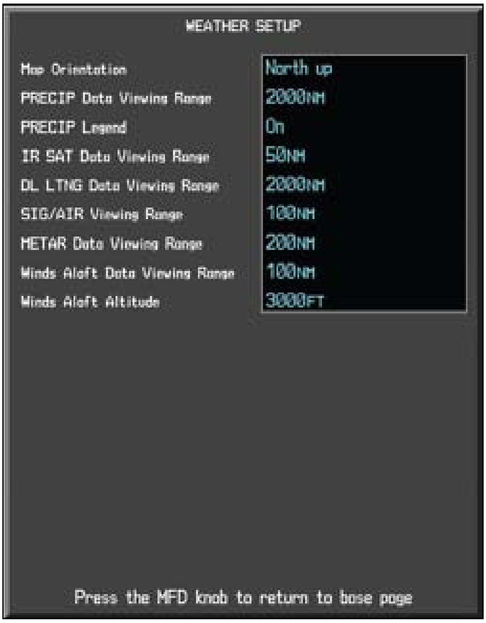


**Figure 4-68 Weather Page Menu Options**

2) With the Data Link Setup Menu displayed, turn the Large **MFD** knob to select the desired item.



WEATHER SETUP

Map Orientation North up
PRECIP Data Viewing Range 2000NM
PRECIP Legend On
IR SAT Data Viewing Range 50NM
DL LTNG Data Viewing Range 2000NM
SIG/AIR Viewing Range 100NM
METAR Data Viewing Range 200NM
Winds Aloft Data Viewing Range 100NM
Winds Aloft Altitude 3000FT

Press the MFD knob to return to base page

Figure 4-69  Weather Data Link Setup Menu Options

3) Turn the small **MFD** knob to select the desired weather feature option.

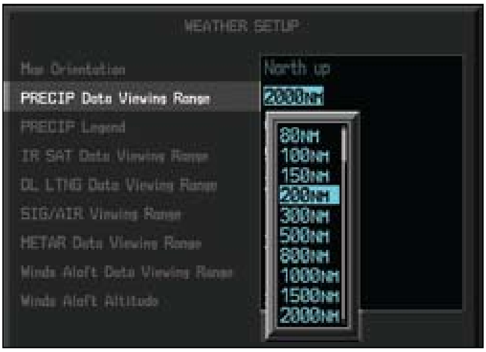

WEATHER SETUP
Map Orientation
PRECIP Data Viewing Range
PRECIP Legend
IR SAT Data Viewing Range
DL LTNG Data Viewing Range
SIG/AIR Viewing Range
METAR Data Viewing Range
Winds Aloft Data Viewing Range
Winds Aloft Altitude
North up
2000NM
80NM
100NM
150NM
200NM
300NM
500NM
800NM
1000NM
1500NM
2000NM

Figure 4-70  Weather Data Link Setup Menu Option Selection

4) Press **ENT** to save a selection.

5) Turn the large **MFD** knob to the next desired option or press the small **MFD** knob to cancel and return to the GFDS Weather Data Link Map Page.

| WX Page Menu - Weather Setup | |
|---|---|
| **Menu Item** | **Adjustment** |
| Map Orientation | North Up, Track Up |
| PRECIP Data Viewing Range | Off, 50 NM to 2000 NM |
| PRECIP Legend | On/Off |
| IR SAT Data Viewing Range | Off, 50 NM to 2000 NM |
| Lightning Data Viewing Range | Off, 50 NM to 2000 NM |
| SIG/Air Viewing Range | Off, 50 NM to 2000 NM |
| METAR Data Viewing Range | Off, 50 NM to 2000 NM |
| Wnd Aloft Data Viewing Range | Off, 50 NM to 2000 NM |
| Wnd Aloft Altitude | Surface, 3000 feet to 42000 feet |

Table 4-17  GFDS Weather Page Menu Setup Options

## 4.9.4 Weather Page Map Orientation

The Orientation option sets the orientation of the Wx Data Link Map pages.

1) While viewing the Wx Data Link Map 1, 2, or 3 of the Wx page group, press the **MENU** key. With "Weather Setup" highlighted, press **ENT**.

2) With the "Map Orientation" option active, turn the small **MFD** knob to change the highlighted value.

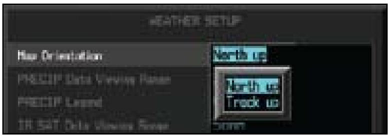


Figure 4-71  Weather Page Map Orientation

3) Press **ENT** to accept the displayed value. The next option will be highlighted.

4) Press the small **MFD** knob to cancel selection or to end editing and return to the WX page or turn the large **MFD** knob to the next option.

## 4.9.5 GFDS Data Request

It is necessary to request the downloading of weather products. Requests can be sent manually or set to automatically update at a selected rate.

1) While viewing a WX Data Link Map page of the WX page group, press the **MENU** key to display the Page Menu Options.

2) Turn the large **MFD** knob to highlight "GFDS Data Request." Press **ENT.**

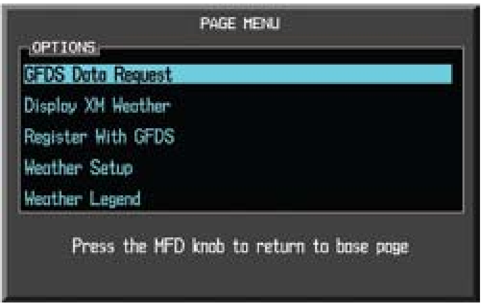
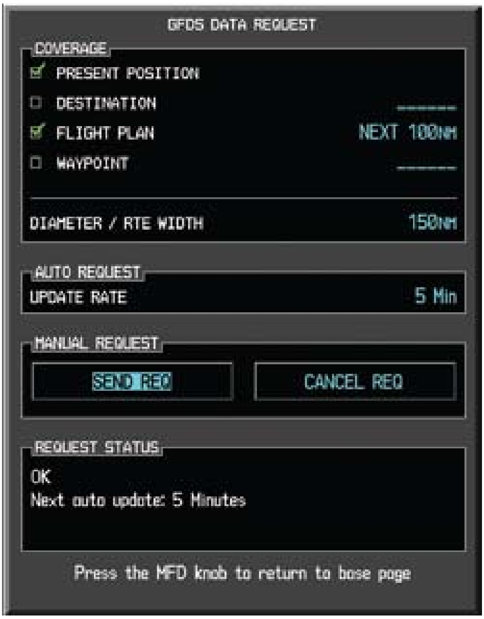

PAGE MENU
OPTIONS
GFDS Data Request
Display XM Weather
Register With GFDS
Weather Setup
Weather Legend
Press the MFD knob to return to base page

Figure 4-72 Select GFDS Data Request

3) Turn the small **MFD** knob to select values and the large **MFD** knob to move to the next position.


GFDS DATA REQUEST
COVERAGE
AUTO REQUEST
MANUAL REQUEST
SEND REQ
CANCEL REQ
REQUEST STATUS
Press the MFD knob to return to base page

☑ PRESENT POSITION
☐ DESTINATION ------
☑ FLIGHT PLAN NEXT 100NM
☐ WAYPOINT ------
DIAMETER / RTE WIDTH 150NM
UPDATE RATE 5 Min
OK
Next auto update: 5 Minutes

Figure 4-73 GFDS Data Request Page

### 4.9.5.1 GFDS Data Request Coverage

**Present Position GFDS Data Request**

1) While viewing a WX Data Link Map page of the WX page group, press the **MENU** key to display the Page Menu Options.

2) Turn the large **MFD** knob to highlight "GFDS Data Request." Press **ENT.**

3) Turn the large **MFD** knob to highlight "Present Position." Press **ENT.**

4) The Present Position box will be checked and weather information will be requested around your present position.

5) To deselect Present Position reporting, turn the large **MFD** knob to highlight "Present Position." Press **ENT.**

**Destination GFDS Data Request**

1) Turn the large **MFD** knob to highlight "Destination." Press **ENT.**

2) The Destination box will be checked and weather information will be requested around your flight plan destination.

3) To deselect Destination reporting, turn the large **MFD** knob to highlight "Destination." Press **ENT.**

**Flight Plan GFDS Data Request**

1) Turn the large **MFD** knob to highlight "Flight Plan." Press **ENT**.

2) The range list will now be highlighted. Turn the small **MFD** knob to highlight the desired range and press **ENT**.

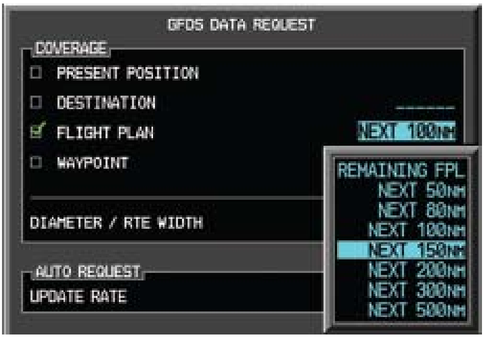

GFDS DATA REQUEST
COVERAGE
☐ PRESENT POSITION
☐ DESTINATION
☑ FLIGHT PLAN
☐ WAYPOINT
NEXT 100NM
DIAMETER / RTE WIDTH
AUTO REQUEST
UPDATE RATE
REMAINING FPL
NEXT 50NM
NEXT 80NM
NEXT 100NM
NEXT 150NM
NEXT 200NM
NEXT 300NM
NEXT 500NM

Figure 4-74 Flight Plan GFDS Data Request

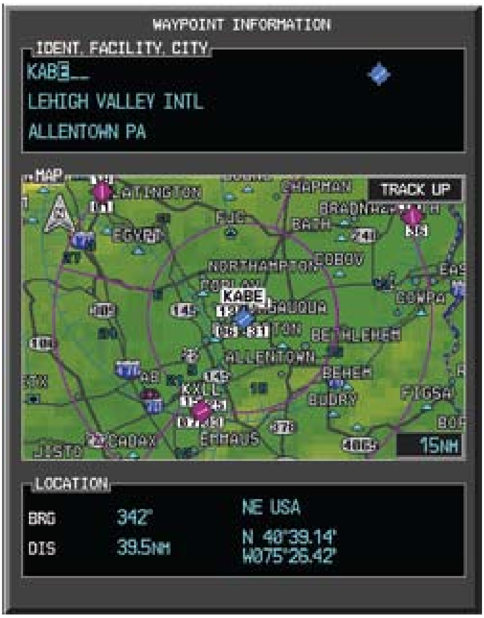
3) The Flight Plan box will be checked and weather information will be requested along your flight plan forward of your present position for the range selected.

4) To deselect Flight Plan reporting, turn the large **MFD** knob to highlight "Flight Plan." Press **ENT.**

### Waypoint GFDS Data Request

1) Turn the large **MFD** knob to highlight "Waypoint." Press **ENT**.

2) The Waypoint Selection field will now be highlighted. Turn the small **MFD** knob to select the first character. Turn the large **MFD** knob to highlight the next character. When finished selecting the waypoint name, press **ENT**.



WAYPOINT INFORMATION

IDENT, FACILITY, CITY

KABE_ _

LEHIGH VALLEY INTL

ALLENTOWN PA

LOCATION

BRG 342°

DIS 39.5NM

NE USA

N 40°39.14'

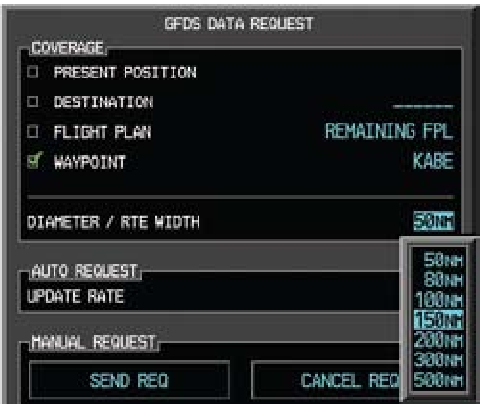
W075°26.42'

**Figure 4-75 Waypoint GFDS Data Request**

3) The Waypoint box will be checked and weather information will be requested around the selected waypoint for the range selected (next operation).

### Diameter/Route Width GFDS Data Request

1) After selecting a coverage option in the previous section, the Diameter/Route Width field will now be highlighted.



GFDS DATA REQUEST

COVERAGE
☐ PRESENT POSITION
☐ DESTINATION ------
☐ FLIGHT PLAN REMAINING FPL
☑ WAYPOINT KABE

DIAMETER / RTE WIDTH 50NM

AUTO REQUEST
UPDATE RATE

MANUAL REQUEST

SEND REQ
CANCEL REQ
50NM
80NM
100NM
150NM
200NM
300NM
500NM

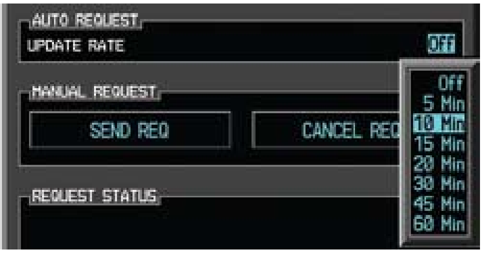
Figure 4-76 Waypoint GFDS Data Request Range

2) Turn the small **MFD** knob to select the desired Diameter/Route Width and then press **ENT**.

## 4.9.5.2 GFDS Data Request Auto Request

1) Turn the large **MFD** knob to highlight "Auto Request - Update Rate."

2) Turn the small **MFD** knob to select "Off" or an Update Rate. When finished selecting the Update Rate, press **ENT**. The Update Rate will default to "OFF" at each power cycle.



AUTO REQUEST
UPDATE RATE Off

MANUAL REQUEST

REQUEST STATUS

SEND REQ
CANCEL REQ
Off
5 Min
10 Min
15 Min
20 Min
30 Min
45 Min
60 Min

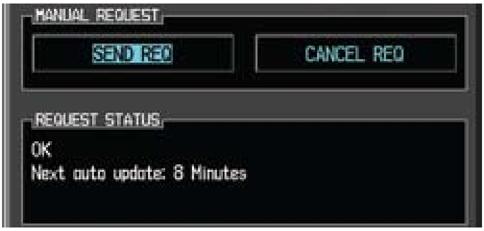
Figure 4-77 GFDS Data Request Auto Update Rate

### 4.9.5.3 GFDS Data Request Manual Request

The GFDS weather data may be updated at any time regardless of the automatic update timing by selecting a Manual Request. When multiple requests are made, some products are merged with the old data (SIGMETs/AIRMETs, TAFs, TFRs, and METARs), but the old data of other products is discarded.

1) Turn the large **MFD** knob to highlight "Manual Request - Send Req."

2) Press **ENT**.



OK
Next auto update: 8 Minutes

Figure 4-78 Manual GFDS Data Request

3) The update request will occur immediately. The action will be noted in the Request Status window. The Auto Request time will be reset to the selected value.

### 4.9.5.4 GFDS Data Request Status Window

The Request Status window will show a response such as "OK" when manual requests are made. The time for the next auto update will be shown.

## 4.9.6 Precipitation (PRECIP) Data Viewing Range

The PRECIP Viewing Range option allows you to select the map range where at and below the selected value PRECIP weather products will be shown on the selected MFD Wx Data Link Map page (1, 2, or 3). When Off is selected, PRECIP weather data will not be shown. In the figure below where 500 NM is selected, PRECIP data will be shown at map ranges of 500 NM and lower. TFRs and METARs are the only weather products shown below 10 NM.

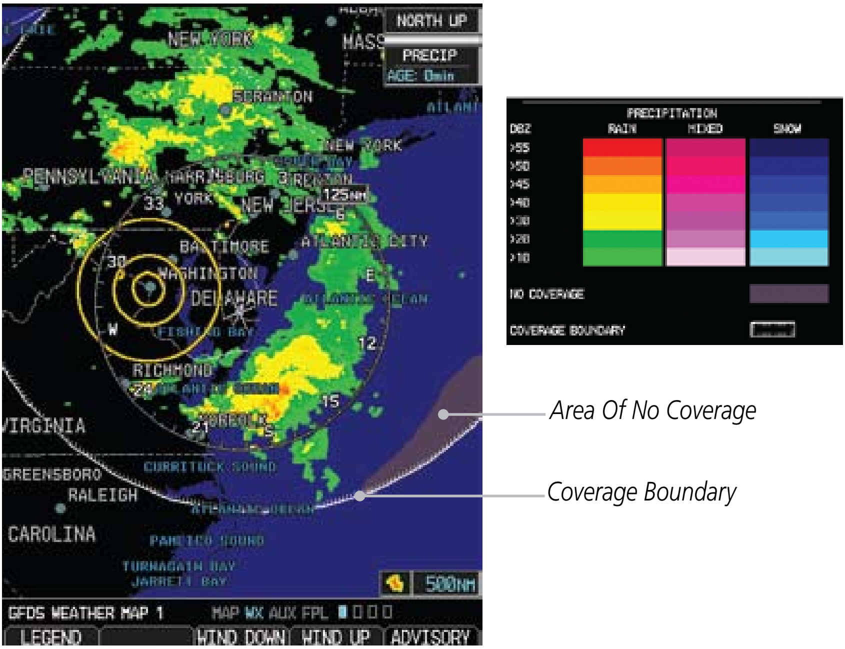

NORTH UP
PRECIP
AGE: 0min
PRECIPITATION
DBZ
RAIN
MIXED
SNOW
>55
>50
>45
>40
>30
>20
>10
NO COVERAGE
COVERAGE BOUNDARY
Area Of No Coverage
Coverage Boundary
500NM
125NM
GFDS WEATHER MAP 1
MAP WX AUX FPL
LEGEND
WIND DOWN
WIND UP
ADVISORY

Figure 4-79  GFDS PRECIP Weather Map Display and Legend

1) While viewing a WX Data Link Map page of the WX page group, press the **MENU** key to display the Page Menu Options. Turn the large **MFD** knob to highlight the Weather Setup option and press **ENT.**

2) Turn the large **MFD** knob to highlight PRECIP Data Viewing Range. Turn the small **MFD** knob to highlight the desired value.

3) Press **ENT** to accept the displayed value. The next option will be highlighted.

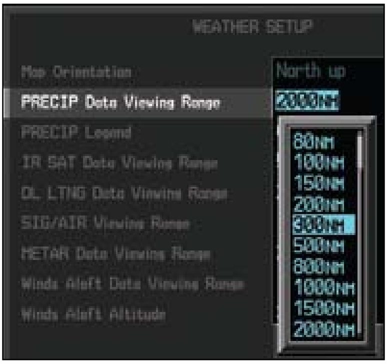

WEATHER SETUP
Map Orientation
PRECIP Data Viewing Range
PRECIP Legend
IR SAT Data Viewing Range
DL LTNG Data Viewing Range
SIG/AIR Viewing Range
METAR Data Viewing Range
Winds Aloft Data Viewing Range
Winds Aloft Altitude
North up
2000NM
80NM
100NM
150NM
200NM
300NM
500NM
800NM
1000NM
1500NM
2000NM

Figure 4-80  GFDS PRECIP Viewing Range Selection

4) Press the small **MFD** knob to cancel selection or to end editing and return to the WX page or turn the large **MFD** knob to the next option.

## 4.9.7 PRECIP Legend

The PRECIP Legend selection provides the option of displaying an abbreviated version of the PRECIP legend in the top right region of the MFD. The full legend is available by pressing the **LEGEND** soft key.

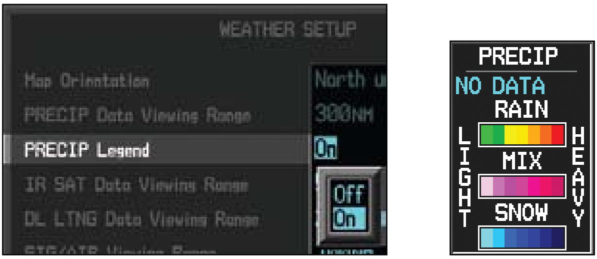

WEATHER SETUP
Map Orientation
PRECIP Data Viewing Range
PRECIP Legend
IR SAT Data Viewing Range
DL LTNG Data Viewing Range
North u
300NM
On
Off
On
PRECIP
NO DATA
RAIN
MIX
SNOW
LIGHT
HEAVY

Figure 4-81  GFDS PRECIP Legend Selection

1) While viewing a WX Data Link Map page of the WX page group, press the **MENU** key to display the Page Menu Options. Turn the large **MFD** knob to highlight the Weather Setup option and press **ENT.**

2) Turn the large **MFD** knob to highlight PRECIP Legend.

3) Turn the small **MFD** knob to highlight Off or On. Press **ENT** to accept the displayed value. The next option will be highlighted.

4) Press the small **MFD** knob to cancel selection or to end editing and return to the WX page or turn the large **MFD** knob to the next option.

## 4.9.8 GFDS Infrared Satellite (IR SAT) Data Viewing Range

IR SAT data is available over North America and Europe and depicts cloud top temperatures from satellite imagery. Brighter cloud top colors indicate cooler temperatures occurring at higher altitudes. Information is updated every half hour.

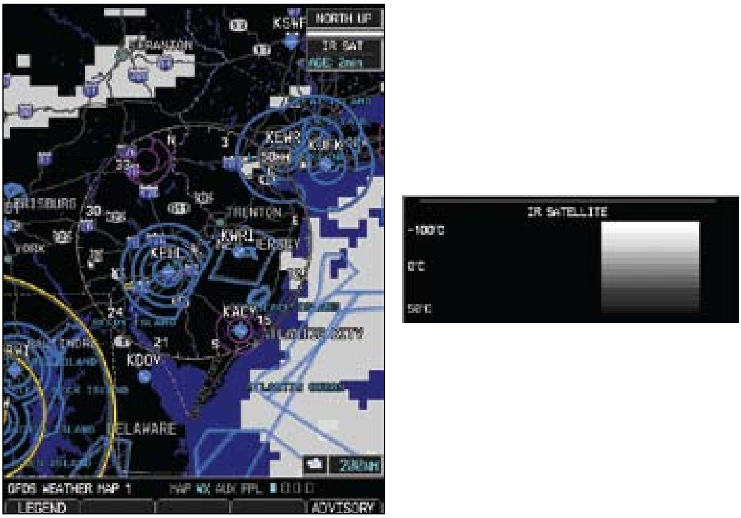
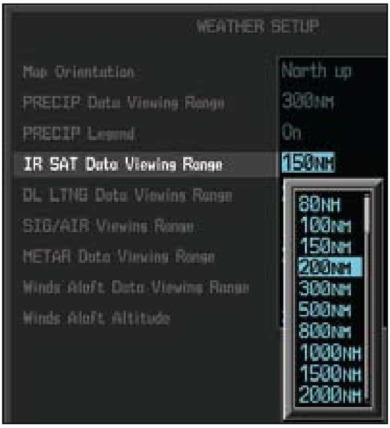

NORTH UP
IR SAT
AGE: 2min
KSWF
SCRANTON
KEWR
KJFK
HARRISBURG
YORK
TRENTON
KWRI
KPHL
JERSEY
KACY
ATLANTIC CITY
BALTIMORE
KDOV
DELAWARE
200NM
GFDS WEATHER MAP 1
MAP WX AUX FPL
LEGEND
ADVISORY
IR SATELLITE
-100°C
0°C
50°C

Figure 4-82 GFDS Infrared Satellite Data Map Display and Legend

## IR SAT Data Viewing Range

The IR SAT Data Viewing Range option allows you to select the map range where at and below that value IR SAT weather products will be shown on the selected MFD Wx Data Link Map page (1, 2, or 3). When Off is selected, IR SAT will not be shown. In the figure below where 200 NM is selected, IR SAT data will be shown at map ranges of 200 NM and lower.



WEATHER SETUP

Map Orientation North up
PRECIP Data Viewing Range 300NM
PRECIP Legend On
IR SAT Data Viewing Range 150NM
DL LTNG Data Viewing Range
SIG/AIR Viewing Range
METAR Data Viewing Range
Winds Aloft Data Viewing Range
Winds Aloft Altitude

Figure 4-83  GFDS IR SAT Viewing Range Selection

1) While viewing a WX Data Link Map page of the WX page group, press the **MENU** key to display the Page Menu Options. Turn the large **MFD** knob to highlight the Weather Setup option and press **ENT.**

2) Turn the large **MFD** knob to highlight IR SAT Data Viewing Range. Turn the small **MFD** knob to highlight the desired value.

3) Turn the small **MFD** knob to highlight the desired value. Press **ENT** to accept the displayed value. The next option will be highlighted.

4) Press the small **MFD** knob to cancel selection or to end editing and return to the WX page or turn the large **MFD** knob to the next option.

## 4.9.9 Data Link Lightning (DL LTNG) Data Viewing Range

Lightning data shows the approximate location of cloud-to-ground lightning strikes. A strike icon represents a strike that has occurred within a two-kilometer region. The exact location of the lightning strike is not displayed. Only cloud to ground strikes are reported in the US and extreme southern Canada (cloud to cloud strikes are not reported).

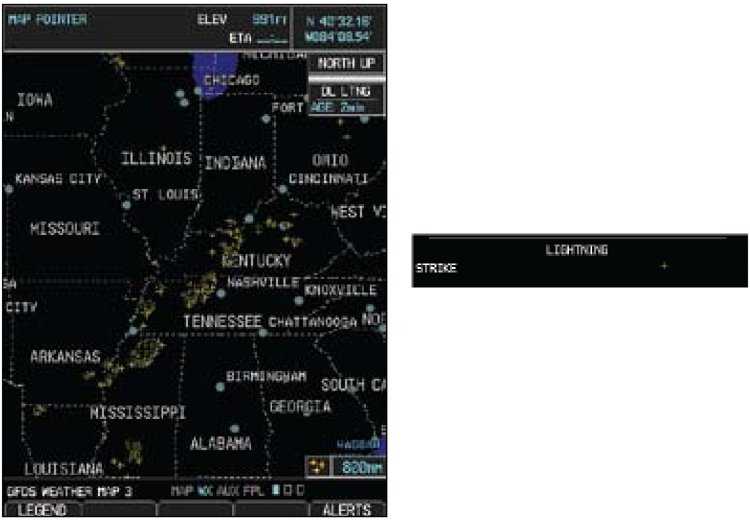

MAP POINTER
ELEV 591FT
ETA
N 40°32.16'
W084°08.54'
NORTH UP
DL LTNG
AGE 2min
CHICAGO
IOWA
FORT
ILLINOIS
INDIANA
OHIO
KANSAS CITY
ST LOUIS
CINCINNATI
MISSOURI
WEST V
KENTUCKY
NASHVILLE
KNOXVILLE
CITY
TENNESSEE
CHATTANOOGA
ARKANSAS
BIRMINGHAM
SOUTH CA
MISSISSIPPI
GEORGIA
ALABAMA
LOUISIANA
800NM
GFDS WEATHER MAP 3
MAP WX AUX FPL
LEGEND
ALERTS
LIGHTNING
STRIKE

Figure 4-84 GFDS Data Link Lightning and Legend

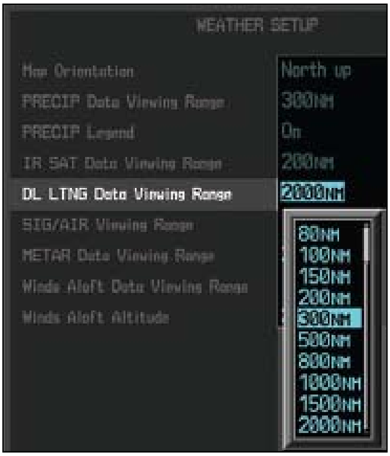
### Data Link Lightning Data Viewing Range

The Lightning Data Viewing Range option allows you to select the map range where at and below that value Lightning weather products will be shown on the selected MFD Wx Data Link Map page (1, 2, or 3). When Off is selected, Lightning will not be shown. In the figure above where 300 NM is selected, GFDS data will be shown at map ranges of 300 NM and lower.

1) While viewing a WX Data Link Map page of the WX page group, press the **MENU** key to display the Page Menu Options. Turn the large **MFD** knob to highlight the Weather Setup option and press **ENT.**

2) Turn the large **MFD** knob to highlight DL LTNG Data Viewing Range.

3) Turn the small **MFD** knob to highlight the desired value. Press **ENT** to accept the displayed value. The next option will be highlighted.



WEATHER SETUP

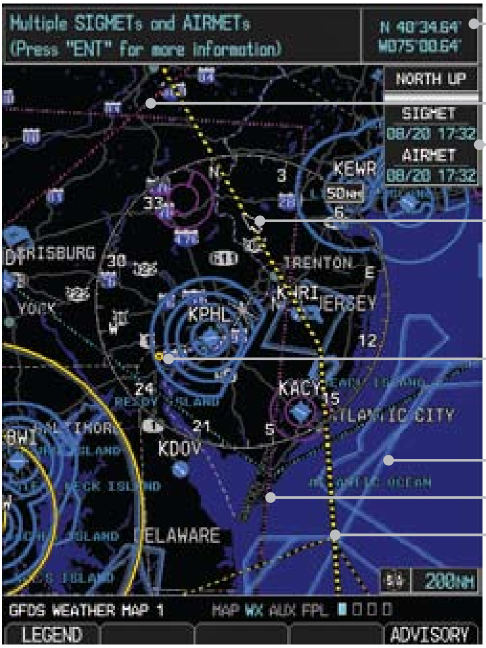
| | |
|---|---|
| Map Orientation | North up |
| PRECIP Data Viewing Range | 300NM |
| PRECIP Legend | On |
| IR SAT Data Viewing Range | 200NM |
| DL LTNG Data Viewing Range | 2000NM |
| SIG/AIR Viewing Range | |
| METAR Data Viewing Range | |
| Winds Aloft Data Viewing Range | |
| Winds Aloft Altitude | |

Figure 4-85  GFDS Lightning Viewing Range Selection

4) Press the small **MFD** knob to cancel selection or to end editing and return to the WX page or turn the large **MFD** knob to the next option.

## 4.9.10 SIGMETs and AIRMETs (SIG/AIR)

SIGMETs (SIGnificant METeorological Information) and AIRMETs (AIRmen's METeorological Information) are broadcast for potentially hazardous weather considered of importance to aircraft. A Convective SIGMET is issued for hazardous convective weather. A localized SIGMET is a significant weather condition occurring at a localized geographical position.


Multiple SIGMETs and AIRMETs
(Press "ENT" for more information)
N 40°34.64'
W075°00.64'
NORTH UP
SIGMET
08/20 17:32
AIRMET
08/20 17:32
KEWR
50NM
HARRISBURG
TRENTON
YORK
KPHL
KMRI
JERSEY
KACY
ATLANTIC CITY
BALTIMORE
BWI
KDOV
DELAWARE
ATLANTIC OCEAN
200NM
GFDS WEATHER MAP 1
MAP WX AUX FPL
LEGEND
ADVISORY

Cursor Location

MTN Obscures Visibility

Product Age

Cursor On AIRMET/SIGMET Line

Localized SIGMET

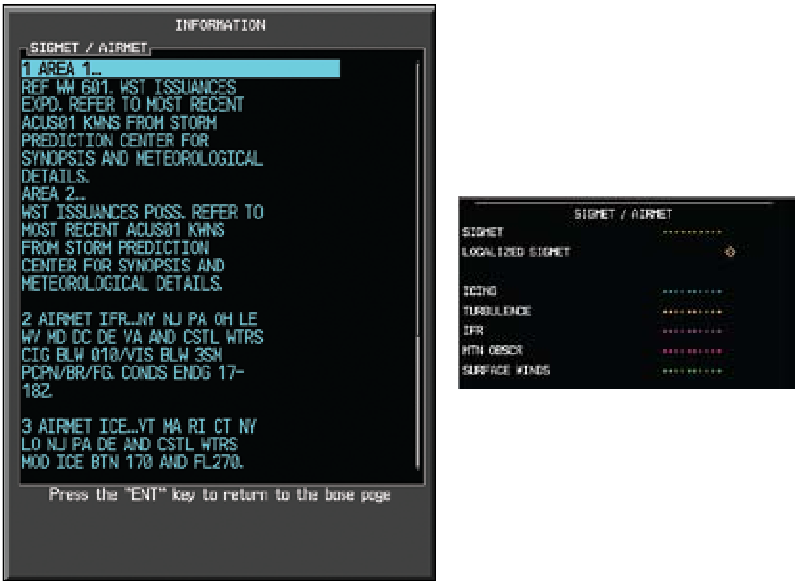
Icing

IFR Line

SIGMET Line

**Figure 4-86 GFDS Weather Page - AIRMETs/SIGMETs**

When enabled, SIGMET/AIRMETs advise the pilot of potentially hazardous weather to all aircraft. SIGMET/AIRMET data covers icing, turbulence, dust, and volcanic ash as issued by the National Weather Service. The update rate is every 12 minutes in the U.S. Elsewhere, updates are made as they are issued.



INFORMATION

SIGMET / AIRMET

1 AREA 1...
REF WW 601. WST ISSUANCES
EXPD. REFER TO MOST RECENT
ACUS01 KWNS FROM STORM
PREDICTION CENTER FOR
SYNOPSIS AND METEOROLOGICAL
DETAILS.
AREA 2...
WST ISSUANCES POSS. REFER TO
MOST RECENT ACUS01 KWNS
FROM STORM PREDICTION
CENTER FOR SYNOPSIS AND
METEOROLOGICAL DETAILS.

2 AIRMET IFR...NY NJ PA OH LE
WV MD DC DE VA AND CSTL WTRS
CIG BLW 010/VIS BLW 3SM
PCPN/BR/FG. CONDS ENDG 17-
18Z.

3 AIRMET ICE...VT MA RI CT NY
LO NJ PA DE AND CSTL WTRS
MOD ICE BTN 170 AND FL270.

Press the "ENT" key to return to the base page

SIGMET / AIRMET

SIGMET
LOCALIZED SIGMET
ICING
TURBULENCE
IFR
MTN OBSCR
SURFACE WINDS

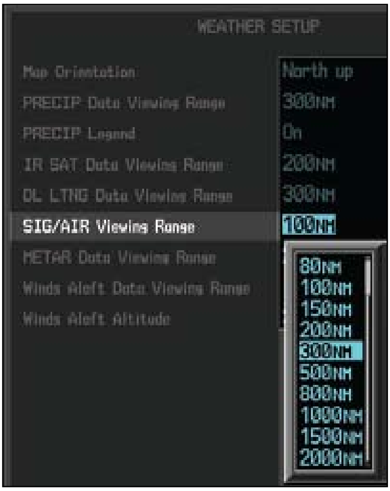
Figure 4-87 GFDS Weather - AIRMETs/SIGMETs Detail and Legend

When enabled, the following AIRMETs are available for display:

- Icing
- Turbulence
- IFR conditions
- Mountain obscuration
- Surface winds

## SIGMET/AIRMET Viewing Range

The SIGMET/AIRMET Viewing Range option allows you to select the map range where at and below that value SIGMET/AIRMET products will be shown on the selected MFD Wx Data Link Map page (1, 2, or 3). When Off is selected, SIGMET/AIRMET will not be shown. In the figure below where 300 NM is selected, SIGMET/AIRMET data will be shown at map ranges of 300 NM and lower.



WEATHER SETUP

Map Orientation North up
PRECIP Data Viewing Range 300NM
PRECIP Legend On
IR SAT Data Viewing Range 200NM
DL LTNG Data Viewing Range 300NM
SIG/AIR Viewing Range 100NM
METAR Data Viewing Range
Winds Aloft Data Viewing Range
Winds Aloft Altitude

Figure 4-88 GFDS SIG/AIR Viewing Range Selection

1) While viewing a WX Data Link Map page of the WX page group, press the **MENU** key to display the Page Menu Options. Turn the large **MFD** knob to highlight the Weather Setup option and press **ENT.**
2) Turn the large **MFD** knob to highlight SIG/AIR Viewing Range.
3) Turn the small **MFD** knob to highlight the desired value. Press **ENT** to accept the displayed value. The next option will be highlighted.
4) Press the small **MFD** knob to cancel selection or to end editing and return to the WX page or turn the large **MFD** knob to the next option.

## 4.9.11 METARs

***NOTE:** Atmospheric pressure reported for METARs is given in hectopascals (hPa), except in the United States, where it is reported in inches of mercury (in Hg). Temperatures are reported in Celsius.*

***NOTE:** METAR information is only displayed within the installed aviation database service area.*

METAR (METeorological Aerodrome Report), known as an Aviation Routine Weather Report, is the standard format for current weather observations. METARs are generally updated hourly, but some site are more frequent. Special updates are done as conditions warrant. METARs typically contain information about the temperature, dew point, wind, precipitation, cloud cover, cloud heights, visibility, and barometric pressure. They can also contain information on precipitation amounts, lightning, and other critical data. METARs are shown as colored flags at airports that provide them.

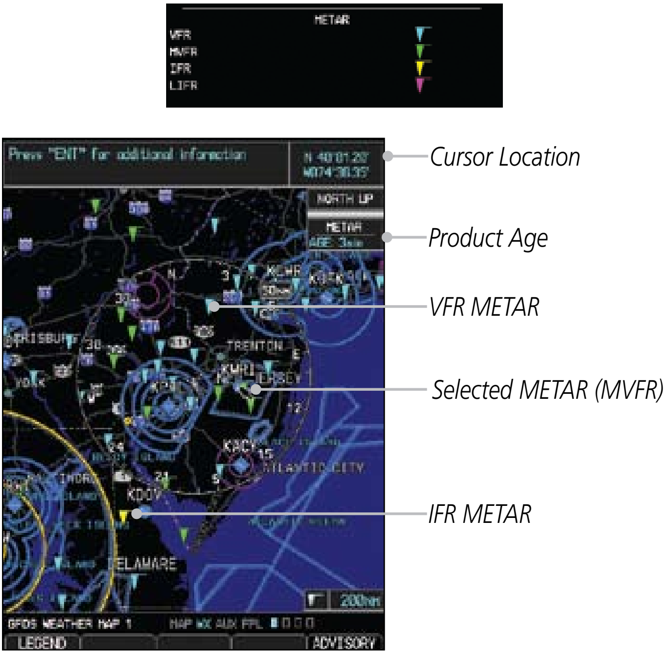
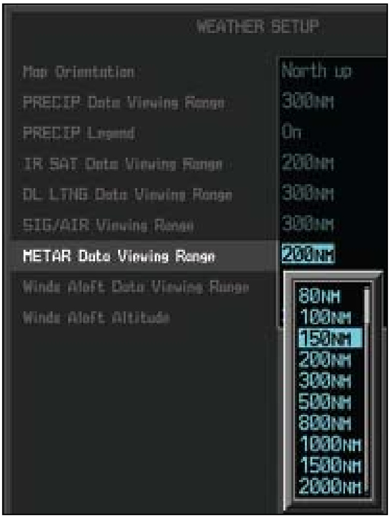

METAR
VFR
MVFR
IFR
LIFR
Press "ENT" for additional information
N 40°01.20'
W074°30.35'
NORTH UP
METAR
AGE 3min
TRENTON
DELAWARE
ATLANTIC CITY
200nm
GFDS WEATHER MAP 1
MAP WX AUX FPL
LEGEND
ADVISORY
Cursor Location
Product Age
VFR METAR
Selected METAR (MVFR)
IFR METAR

**Figure 4-89 GFDS Weather - Graphic METARs and Legend**

## METAR Viewing Range

The METAR Viewing Range option allows you to select the map range where at and below that value METAR weather products will be shown on the selected MFD Wx Data Link Map page (1, 2, or 3). When Off is selected, METARs will not be shown. In the figure below where 150 NM is selected, METAR data will be shown at map ranges of 150 NM and lower.



Map Orientation North up
PRECIP Data Viewing Range 300NM
PRECIP Legend On
IR SAT Data Viewing Range 200NM
DL LTNG Data Viewing Range 300NM
SIG/AIR Viewing Range 300NM
METAR Data Viewing Range 200NM
Winds Aloft Data Viewing Range
Winds Aloft Altitude

Figure 4-90  METAR Viewing Range Selection

1) While viewing a WX Data Link Map page of the WX page group, press the **MENU** key to display the Page Menu Options. Turn the large **MFD** knob to highlight the Weather Setup option and press **ENT.**

2) Turn the large **MFD** knob to highlight METAR Data Viewing Range.

3) Turn the small **MFD** knob to highlight the desired value. Press **ENT** to accept the displayed value. The next option will be highlighted.

4) Press the small **MFD** knob to cancel selection or to end editing and return to the WX page or turn the large **MFD** knob to the next option.

## 4.9.12 Winds Aloft

Winds Aloft data shows the forecast wind speed and direction at the surface and at selected altitudes. Altitudes can be selected in 3000 foot increments from the surface up to 42,000 feet MSL. Pressing the **WIND DOWN** or **WIND UP** soft keys steps down or up in 3,000 foot increments.

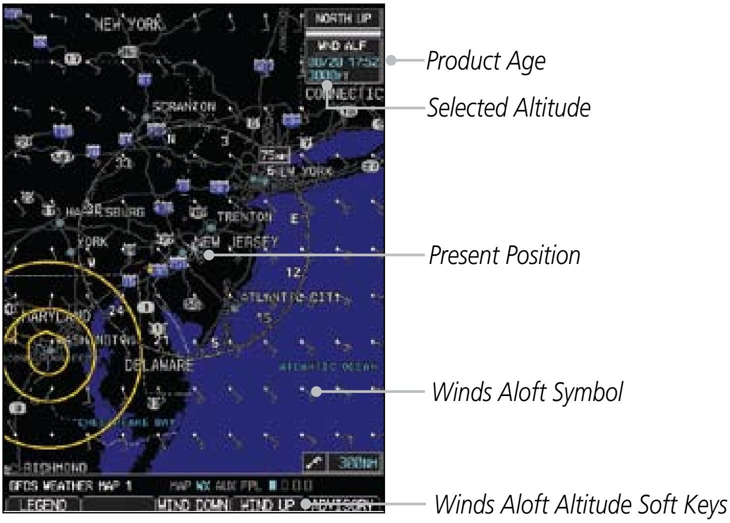
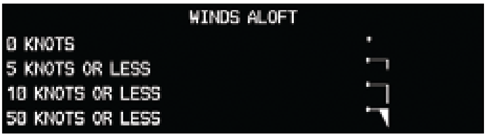

NORTH UP
WND ALF
Product Age
Selected Altitude
NEW YORK
SCRANTON
TRENTON
NEW JERSEY
Present Position
ATLANTIC CITY
MARYLAND
DELAWARE
Winds Aloft Symbol
RICHMOND
GFDS WEATHER MAP 1
LEGEND
WIND DOWN
WIND UP
ADVISORY
Winds Aloft Altitude Soft Keys

Figure 4-91  GFDS Weather - Winds Aloft



WINDS ALOFT

0 KNOTS

5 KNOTS OR LESS

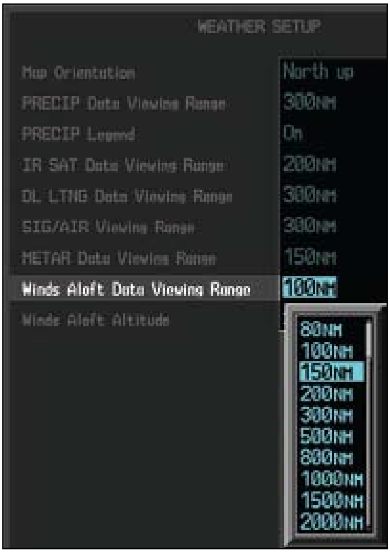
10 KNOTS OR LESS

50 KNOTS OR LESS

Figure 4-92  GFDS Weather - Winds Aloft Legend

## Winds Aloft Data Viewing Range

The Winds Aloft Data Viewing Range option allows you to select the map range where at and below that value Winds Aloft weather products will appear on the selected MFD Wx Data Link Map page (1, 2, or 3). When Off is selected, Winds Aloft will not be shown. In the figure below where 150 NM is selected, Winds Aloft data will be shown at map ranges of 150 NM and lower.



WEATHER SETUP

Map Orientation North up

PRECIP Data Viewing Range 300NM

PRECIP Legend On

IR SAT Data Viewing Range 200NM

DL LTNG Data Viewing Range 300NM

SIG/AIR Viewing Range 300NM

METAR Data Viewing Range 150NM

Winds Aloft Data Viewing Range 100NM

Winds Aloft Altitude

**Figure 4-93 Winds Aloft Data Viewing Range Selection**

1) While viewing a WX Data Link Map page of the WX page group, press the **MENU** key to display the Page Menu Options. Turn the large **MFD** knob to highlight the Weather Setup option and press **ENT.**

2) Turn the large **MFD** knob to highlight Winds Aloft Data Viewing Range.

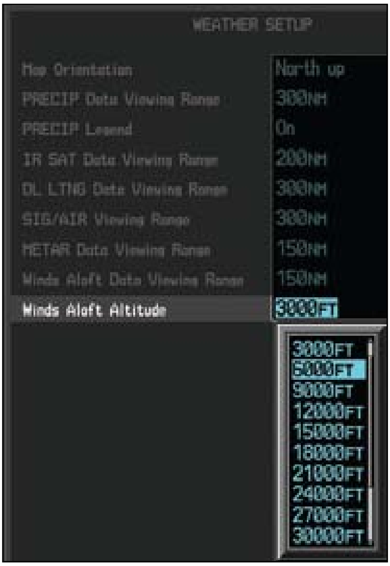
3) Turn the small **MFD** knob to highlight the desired value. Press **ENT** to accept the displayed value. The next option will be highlighted.

4) Press the small **MFD** knob to cancel selection or to end editing and return to the WX page or turn the large **MFD** knob to the next option.

### Winds Aloft Altitude

The Winds Aloft Altitude option allows you to select the altitude where Winds Aloft weather products will be shown on the selected MFD Wx Data Link Map page (1, 2, or 3). Altitude can be selected in 3000 foot increments from the surface up to 42,000 feet MSL.

Pressing the **WIND DOWN** or **WIND UP** soft keys steps down or up in the 3,000 foot increments. In the figure below where 6000 feet is selected, Winds Aloft data will be shown for winds reported at an altitude of 6000 feet.



WEATHER SETUP

Map Orientation North up
PRECIP Data Viewing Range 300NM
PRECIP Legend On
IR SAT Data Viewing Range 200NM
DL LTNG Data Viewing Range 300NM
SIG/AIR Viewing Range 300NM
METAR Data Viewing Range 150NM
Winds Aloft Data Viewing Range 150NM
Winds Aloft Altitude 3000FT

Figure 4-94 Winds Aloft Altitude Selection

1) While viewing a WX Data Link Map page of the WX page group, press the **MENU** key to display the Page Menu Options. Turn the large **MFD** knob to highlight the Weather Setup option and press **ENT.**

2) Turn the large **MFD** knob to highlight Winds Aloft Altitude Viewing Range.

3) Turn the small **MFD** knob to highlight the desired value. Press **ENT** to accept the displayed value. The next option will be highlighted.

4) Press the small **MFD** knob to cancel selection or to end editing and return to the WX page or turn the large **MFD** knob to the next option.

# 5 ADDITIONAL FEATURES (OPTIONAL)

***NOTE:** The availability of SafeTaxi, ChartView, or FliteCharts in electronic form may not preclude the requirement to carry paper charts aboard the aircraft. See the AFMS for more information.*

***NOTE:** ChartView is an optional feature that requires enablement by a Garmin dealer.*

Additional features of the GDU 620 include the following:

- ChartView and FliteCharts® electronic charts
- SafeTaxi® diagrams
- XM® Radio entertainment
- XM Weather (covered in Section 4.7)
- Traffic (covered in Sections 4.5 and 4.6)
- Garmin Synthetic Vision Technology (SVT™)

The optional ChartView and FliteCharts provide on-board electronic terminal procedures charts. Electronic charts offer the convenience of rapid access to essential information. Either ChartView or FliteCharts may be configured in the system, but not both.

SafeTaxi diagrams provide detailed taxiway, runway, and ramp information at more than 700 airports in the United States. By decreasing the range on an airport that has a SafeTaxi diagram available, a close up view of the airport layout can be seen.

The optional XM Radio entertainment audio feature of the GDL 69A Data Link Receiver handles more than 170 channels of music, news, and sports. XM Radio offers more entertainment choices and longer range coverage than commercial broadcast stations.

XM Weather is an optional service that provides the ability to display graphic weather data overlaid on the MFD Nav Map and Weather Data Link pages.

The Traffic Map Page shows surrounding TAS or TIS traffic data in relation to the aircraft's current position and altitude. The Traffic option is designed to assist in detection and avoidance of other aircraft.

The optional Garmin Synthetic Vision Technology (SVT™) is a visual enhancement to the G500H. SVT is displayed as a forward-looking display of the topography immediately in front of the aircraft. SVT information is shown on the primary flight display (PFD).

## 5.1 Viewing Charts

When the Chart function is available, charts will be shown on the third page of the Flight Plan page group. The chart page will default to the nearest airport if no flight plan or destination airport is present. While you are on the ground, the displayed charts will default to the current airport location regardless of flight plan.

***NOTE:** The chart for the destination airport or loaded approach will automatically be selected.*

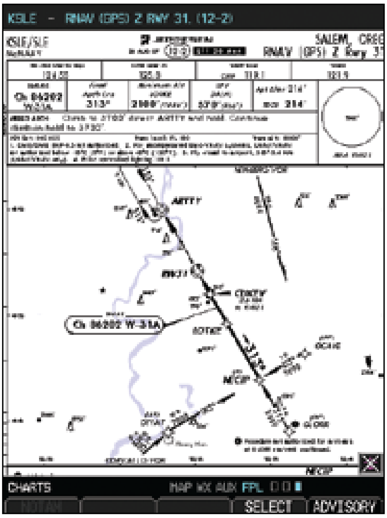

KSLE - RNAV (GPS) Z RWY 31 (12-2)
SALEM, OREG
RNAV (GPS) Z Rwy 31
CHARTS
MAP WX AUX FPL
NOTAM
SELECT
ADVISORY

**Figure 5-1 ChartView Chart Page**

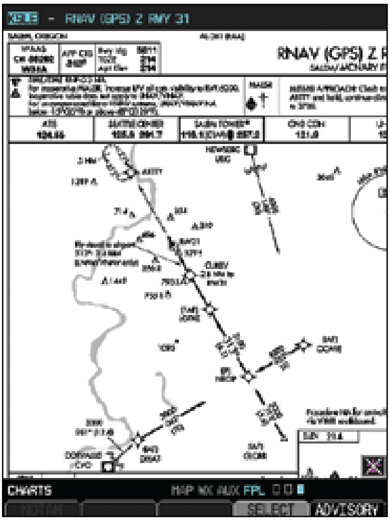

KSLE - RNAV (GPS) Z RWY 31
RNAV (GPS) Z R
CHARTS
MAP WX AUX FPL
NOTAM
SELECT
ADVISORY

**Figure 5-2 FliteChart Chart Page**

1) Turn the large **MFD** knob to the Flight Plan (FPL) page group.

2) Turn the small **MFD** knob to the Charts page.

## 5.1.1 Chart Panning

More detail on the displayed chart can be viewed by zooming in with the Range keys and moving the chart around with pan mode.

***NOTE:** Panning mode is indicated by the presence of scroll bars.*

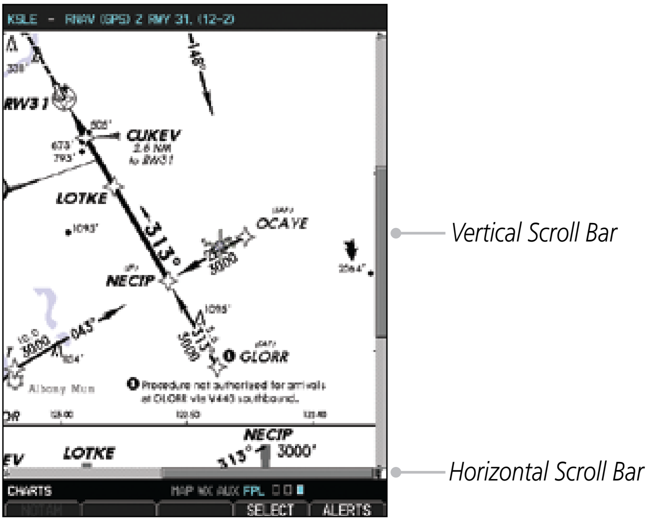

KSLE - RNAV (GPS) Z RWY 31, (12-2)
RW31
CUKEV
2.6 NM to RW31
LOTKE
OCAYE
313°
NECIP
3000
GLORR
043°
Albany Mun
Procedure not authorized for arrivals at GLORR via V448 southbound.
NECIP
313°
3000'
LOTKE
CHARTS
MAP WX AUX FPL
SELECT
ALERTS
Vertical Scroll Bar
Horizontal Scroll Bar

**Figure 5-3 Zooming and Scrolling Around a Chart**

1) While viewing the Charts page of the FPL page group, press the **RNG** (Range) ▲ ▼ keys to zoom in and out.

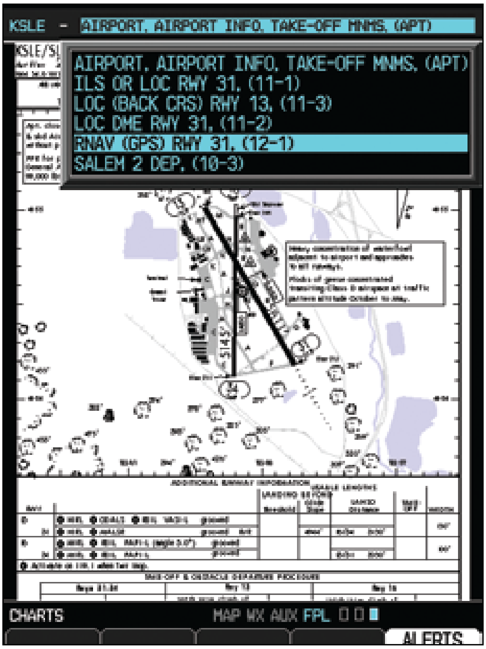
2) After zooming in, you may only see part of the chart. Press the small **MFD** knob to enter Pan mode and activate scroll bars on the edges of the chart. Turn the large and small **MFD** knobs to move around the chart.

3) Press the small **MFD** knob to cancel the scroll bars and exit panning.

## 5.1.2 Choosing a Chart for the Current Airport

***NOTE:** The chart for the destination airport or loaded approach will automatically be selected.*

1) While viewing the Charts page of the FPL page group, press the **SELECT** soft key to activate chart selection.
2) Turn the large **MFD** knob to highlight the field to the right of the airport identifier.
3) Turn the small **MFD** knob to highlight the desired chart.



KSLE - AIRPORT, AIRPORT INFO, TAKE-OFF MNMS, (APT)

AIRPORT, AIRPORT INFO, TAKE-OFF MNMS, (APT)
ILS OR LOC RWY 31, (11-1)
LOC (BACK CRS) RWY 13, (11-3)
LOC DME RWY 31, (11-2)
RNAV (GPS) RWY 31, (12-1)
SALEM 2 DEP, (10-3)

Figure 5-4 Activate Chart Selection for the Current Airport (ChartView shown)

4) Press **ENT** to accept and view the selected chart.

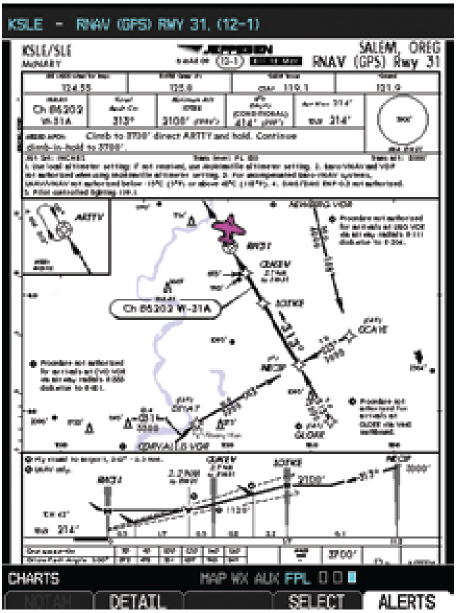

KSLE - RNAV (GPS) RWY 31, (12-1)
KSLE/SLE
McNARY
JEPPESEN
SALEM, OREG
RNAV (GPS) Rwy 31
Ch 86202 W-31A
CHARTS
MAP WX AUX FPL
NOTAM
DETAIL
SELECT
ALERTS

**Figure 5-5 Selected Chart for the Current Airport (ChartView shown)**

5) Press the **Select** key to choose another chart. Press the **Back** key to return to the view of the full chart.

### 5.1.3 Selecting a Chart by Identifier

A chart for a different airport may be chosen by selecting the identifier for the desired airport.

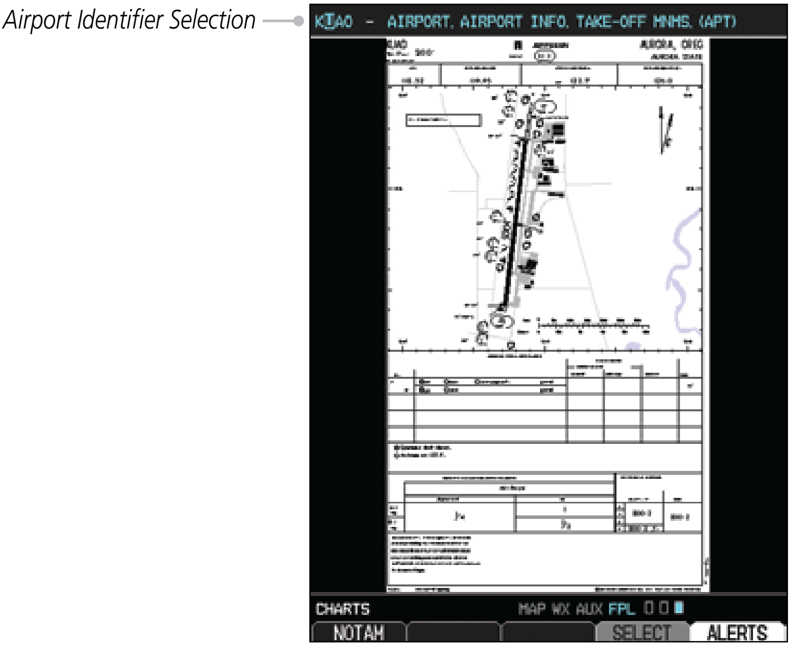

Airport Identifier Selection
KTAO - AIRPORT, AIRPORT INFO, TAKE-OFF MNMS, (APT)
CHARTS
MAP WX AUX FPL
NOTAM
SELECT
ALERTS

Figure 5-6  Airport Identifier Selection

1) While viewing the Charts page of the FPL page group, press the **SELECT** soft key to change the airport.

2) Use the large **MFD** knob to move the cursor to highlight a character.

3) Use the small **MFD** knob to change the character.

4) Press **ENT** to accept the selected airport.

## 5.1.4 Selecting a New Chart by FPL, NRST, or RECENT

You may select other charts to display based on your flight plan (FPL), charts of the nearest airport (NRST), or your most recently selected airports (RECENT).

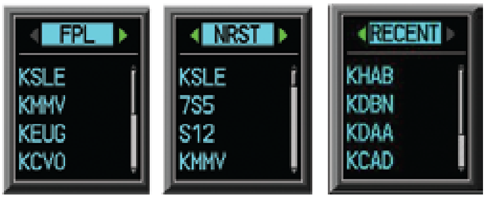

FPL
KSLE
KMMV
KEUG
KCVO
NRST
KSLE
7S5
S12
KMMV
RECENT
KHAB
KDBN
KDAA
KCAD

**Figure 5-7 Chart Category Selection**

1) While viewing the Charts page of the FPL page group, press the **SELECT** soft key.

2) Turn the small **MFD** knob counterclockwise.

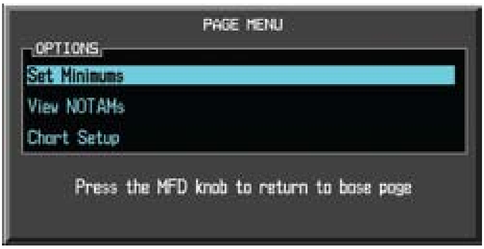
3) Turn the small **MFD** knob counterclockwise to show FPL, NRST, or RECENT.

4) Turn the large **MFD** knob to select the desired identifier and then press **ENT**.

## 5.1.5 Charts Menu Selections

1) In the FPL page group, turn the small **MFD** knob to reach the Charts page.

2) Press **MENU** to display the Options menu.


PAGE MENU
OPTIONS
Set Minimums
View NOTAMs
Chart Setup

Press the MFD knob to return to base page

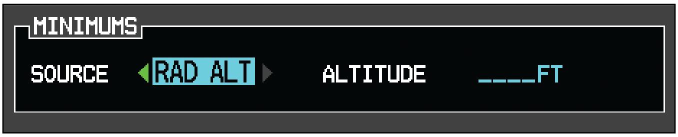
**Figure 5-8 Chart Menu Selections**

3) Turn the large **MFD** knob to select the desired item and then press **ENT**.

### 5.1.5.1 Setting the Altitude Minimums Alerter

1) While viewing the Charts Page of the FPL page group, press the **Menu** key. With the Set Minimums item highlighted, press **ENT.**

2) With the Minimums Source highlighted, select the Altitude Minimums Alerter source with small **MFD** knob.

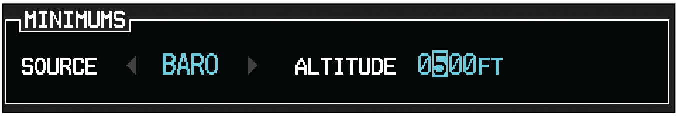


MINIMUMS

SOURCE ◀RAD ALT▶ ALTITUDE _____FT

Figure 5-9 Barometric Minimums Source Selection

3) Turn the large **MFD** knob to highlight the Altitude Minimums value. Turn the large and small **MFD** knobs to change the Altitude Minimums value and then press **ENT** to activate the selected value.



MINIMUMS

SOURCE ◀ BARO ▶ ALTITUDE 0500FT

Figure 5-10 Barometric Minimums Altitude Selection

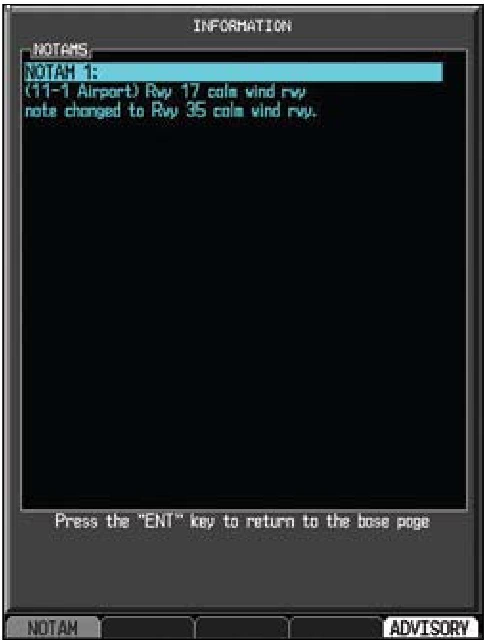
Alerting is inhibited while the aircraft is on the ground and until the aircraft reaches 150 feet above the MDA. The Minimum altitude will be available in the Altitude Alerter.

In dual installations, the minimums alerting altitude value may be set from either GDU 620 and will be synchronized on both units.

***NOTE:** If you highlight the Minimums Altitude field on the FPL page and press the CLR key, it will turn the minimums functionality off.*

### 5.1.5.2 Viewing Chart NOTAMs

If an active NOTAM (Notice to Airmen) exists for the selected chart, the **NOTAM** soft key will be available. Press the **NOTAM** soft key to view the NOTAM or select View NOTAMs from the Chart Options Menu.



INFORMATION

NOTAMS

NOTAM 1:
(11-1 Airport) Rwy 17 calm wind rwy note changed to Rwy 35 calm wind rwy.

Press the "ENT" key to return to the base page

Figure 5-11 Chart NOTAM

### 5.1.5.3 Day/Night View

The Chart pages can be displayed on a white or black background for day or night viewing. The Day View offers a better presentation in a bright environment. The Night View gives a better presentation for viewing in a dark environment. When the CHART SETUP Box is selected the GDU 620 soft keys are blank.

1) In the FPL page group, turn the small **MFD** knob to reach the Charts page.
2) Press **MENU** to display the Options menu.
3) Press **ENT** to go to Chart Setup. The Color Scheme option will be highlighted.
4) Turn the small **MFD** knob to select Day - Auto - Night.
5) Press the small **MFD** knob or the **ENT** key to save the selected value and return to the Charts page.

*NOTE: Once an adjustment is made to the percentage field in Auto mode, the chart must be redrawn (zoomed in or out, or another chart selected) before the switch from Day to Night is seen.*

## 5.2 ChartView (Optional)

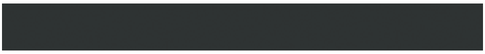
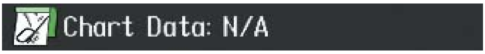
ChartView resembles the paper version of Jeppesen terminal procedures charts. The charts are displayed in full color with high-resolution. The MFD depiction shows the aircraft position on the moving map in the plan view of approach charts and on airport diagrams.

The ChartView database subscription is available from Jeppesen, Inc. ChartView is an optional feature that requires enablement by a Garmin dealer. Available data includes:

- Arrivals (STAR)
- Departure Procedures (DP)
- Approaches
- Airport Diagrams
- Chart NOTAMs

### 5.2.1 Cycle Number and Revision

The ChartView database is revised every 14 days. Charts are still viewable during a period that extends from the cycle expiration date to the disables date. ChartView is disabled 70 days after the expiration date and is no longer available for viewing upon reaching the disable date. When turning on the GDU 620, the Power-up Page indicates any of nine different possible criteria for ChartView availability. See the table below for the various ChartView Power-up Page displays and the definition of each.

| Power-up Page Display | Definition |
|---|---|
|  | Blank Line. GDU 620 system is not configured for ChartView. Contact a Garmin-authorized service center for configuration. |
|  Chart Data: N/A | System is configured for ChartView but no chart database is installed. Contact Jeppesen for a ChartView database. |

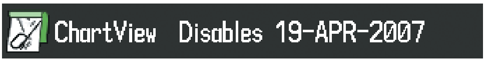
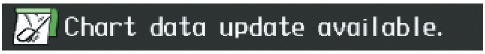
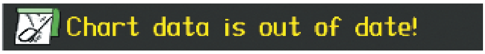
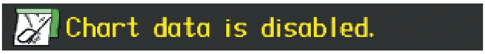
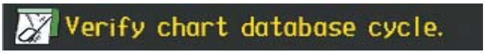
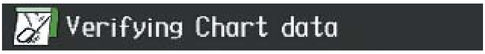
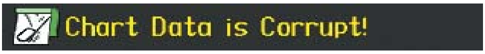
| Power-up Page Display | Definition |
|---|---|
|  ChartView Disables 19-APR-2007 | Normal operation. ChartView database is valid and within current cycle. |
|  Chart data update available. | ChartView database is within 1 week after expiration date. A new cycle is available for update. |
|  Chart data is out of date! | ChartView database is beyond 1 week after expiration date, but still within the 70 day viewing period. |
|  Chart data is disabled. | ChartView database has timed out. Database is beyond 70 days after expiration date. ChartView database is no longer available for viewing. |
|  Verify chart database cycle. | System time is not available. GPS satellite data is unknown or the GPS navigator has not yet locked onto satellites. Check database cycle number for effectivity. |
|  Verifying Chart data | System is verifying chart database when new cycle is installed for the first time. |
|  Chart Data is Corrupt! | After verifying, chart database is found to be corrupt. ChartView will not be available. |

**Table 5-1 Power-up Page Annunciations and Definitions**

The ChartView time critical information can also be found on the AUX - System Status page. The database CYCLE number, EXPIRES, and DISABLES dates of the ChartView database appear in either blue or yellow text. When the ChartView EXPIRES date is reached, ChartView becomes inoperative 70 days later. This is shown as the DISABLES date. When the DISABLES date is reached, charts are no longer available for viewing.

Select the **DBASE** soft key for scrolling through the database information. Scroll through the database with the **MFD** knob or **ENT** key.

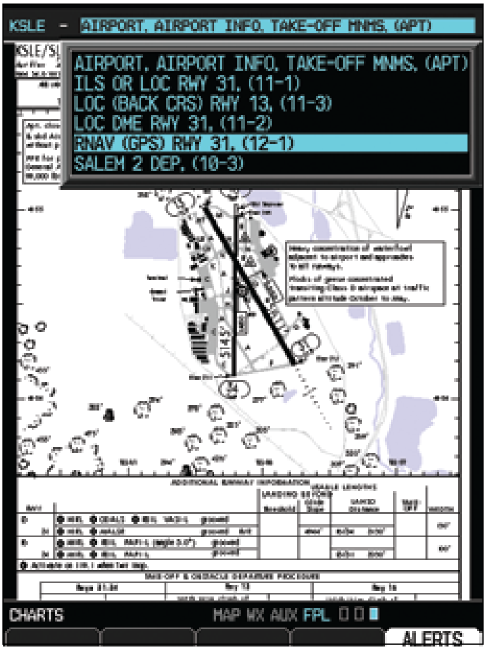
The ChartView database is provided directly from Jeppesen. ChartView is an optional feature that requires enablement by a Garmin dealer. Refer to Jeppesen Databases in Appendix A for instructions on revising the ChartView database.

## 5.2.2 Viewing Chart Details in ChartView

***NOTE:** The chart for the destination airport or loaded approach will automatically be selected.*

***NOTE:** Chart details are only available for instrument approach procedure charts. Chart details are not available for airport diagrams or SID/STAR charts.*

1) While viewing the Charts page of the FPL page group, press the **SELECT** soft key to activate chart selection.
2) Turn the large **MFD** knob to highlight the field to the right of the airport identifier.
3) Turn the small **MFD** knob to highlight the desired chart.



KSLE - AIRPORT, AIRPORT INFO, TAKE-OFF MNMS, (APT)

AIRPORT, AIRPORT INFO, TAKE-OFF MNMS, (APT)
ILS OR LOC RWY 31, (11-1)
LOC (BACK CRS) RWY 13, (11-3)
LOC DME RWY 31, (11-2)
RNAV (GPS) RWY 31, (12-1)
SALEM 2 DEP, (10-3)

Figure 5-12  Activate Chart Selection for the Current Airport (ChartView shown)

4) Press **ENT** to accept and view the selected chart.

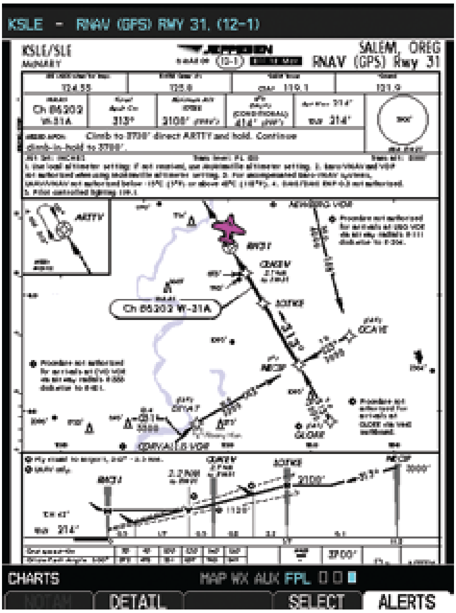

KSLE - RNAV (GPS) RWY 31, (12-1)
KSLE/SLE
McNARY
JEPPESEN
SALEM, OREG
RNAV (GPS) Rwy 31
Ch 86202 W-31A
CHARTS
MAP WX AUX FPL
NOTAM
DETAIL
SELECT
ALERTS

**Figure 5-13 Selected Chart for the Current Airport (ChartView shown)**

5) Press the **Detail** key to view detailed views of the current chart. The **Detail** key is only available with ChartView.

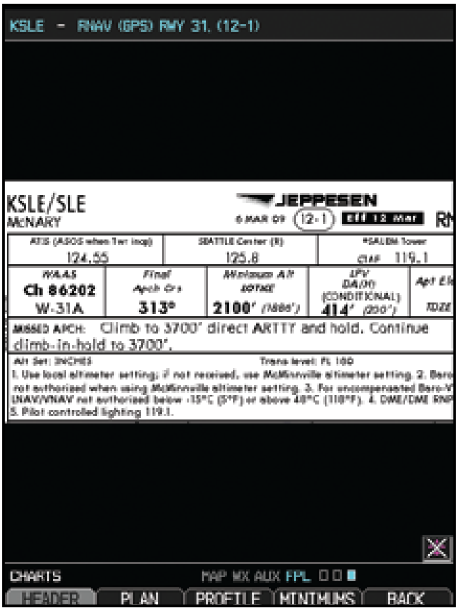
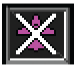

KSLE - RNAV (GPS) RWY 31, (12-1)
KSLE/SLE
McNARY
JEPPESEN
6 MAR 09 (12-1)
ATIS (ASOS when Twr inop)
124.55
SEATTLE Center (R)
125.8
*SALEM Tower
CTAF 119.1
WAAS
Ch 86202
W-31A
Final Apch Crs
313°
Minimum Alt
JOTKE
2100' (1886')
LPV DA(H) (CONDITIONAL)
414' (200')
Apt Elev
TDZE
MISSED APCH: Climb to 3700' direct ARTTY and hold. Continue climb-in-hold to 3700'.
Alt Set: INCHES
Trans level: FL 180
CHARTS
MAP WX AUX FPL
HEADER
PLAN
PROFILE
MINIMUMS
BACK

**Figure 5-14 Detail of the Selected Chart (Header Shown)**

6) Press the **Header**, **Plan**, **Profile**, or **Minimums** keys to view detailed sections for the chart for those topics. A aircraft icon will show in the lower right corner of the display if your aircraft is in the chart area. The icon will have an “x” through it if the aircraft is not in the chart area or the GPS fix is lost.



7) Press the **Back** key to return to the view of the full chart.

## 5.3 FliteCharts®

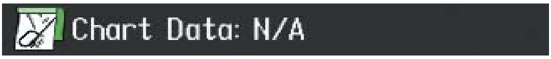
FliteCharts® resemble the paper version of FAA-published terminal procedures charts. The charts are displayed with high-resolution and in color for applicable charts.

FliteCharts database subscription is available from Garmin. Available data includes:

- Arrivals (STAR)
- Departure Procedures (DP)
- Approaches
- Airport Diagrams

### 5.3.1 Cycle Number and Revision

FliteCharts data is revised every 28 days. Charts are still viewable during a period that extends from the cycle expiration date to the disables date. FliteCharts is disabled 180 days after the expiration date and are no longer available for viewing upon reaching the disables date. When turning on the GDU 620, the Power-up page indicates any of five different possible criteria for chart availability. These indications are whether the databases are not configured, not available, current, out of date, or disabled. See the table below for the various FliteCharts Power-up page displays and the definition of each.

| Power-up Page Display | Definition |
|---|---|
| | Blank Line. G500H system is not configured for FliteCharts. Contact a Garmin-authorized service center for configuration. |
|  Chart Data: N/A | System is configured for FliteCharts but no chart database is installed. Refer to Updating Garmin Databases in Appendix A for the FliteCharts database. |

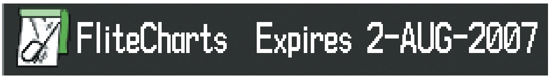
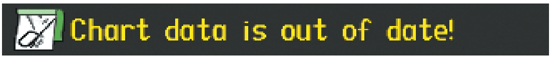
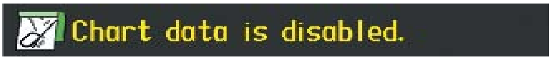
| Power-up Page Display | Definition |
|---|---|
| <br>FliteCharts Expires 2-AUG-2007 | Normal operation. FliteCharts database is valid and within current cycle. |
| <br>Chart data is out of date! | FliteCharts database is beyond the expiration date, but still within the 180 day viewing period. |
| <br>Chart data is disabled. | FliteCharts database has timed out. Database is beyond 180 days after expiration date. FliteCharts database is no longer available for viewing. |

Table 5-2  FliteCharts Power-up Page Annunciations and Definitions

## 5.4 SafeTaxi®

SafeTaxi® is an enhanced feature that gives greater map detail when zooming in on airports at close range. The airport display on the map reveals runways with numbers, taxiways with identifying letters/numbers, airport Hot Spots, and airport landmarks including ramps, buildings, control towers, and other prominent features. Resolution is greater at lower map ranges. When the aircraft location is within the screen boundary, including within SafeTaxi ranges, an aircraft symbol is shown on any of the navigation map views for enhanced position awareness.

Designated Hot Spots are recognized at airports with many intersecting taxiways and runways, and/or complex ramp areas. Airport Hot Spots are outlined to caution pilots of areas on an airport surface where positional awareness confusion or runway incursions happen most often. Hot Spots are defined with a magenta circle or outline around the region of possible confusion.

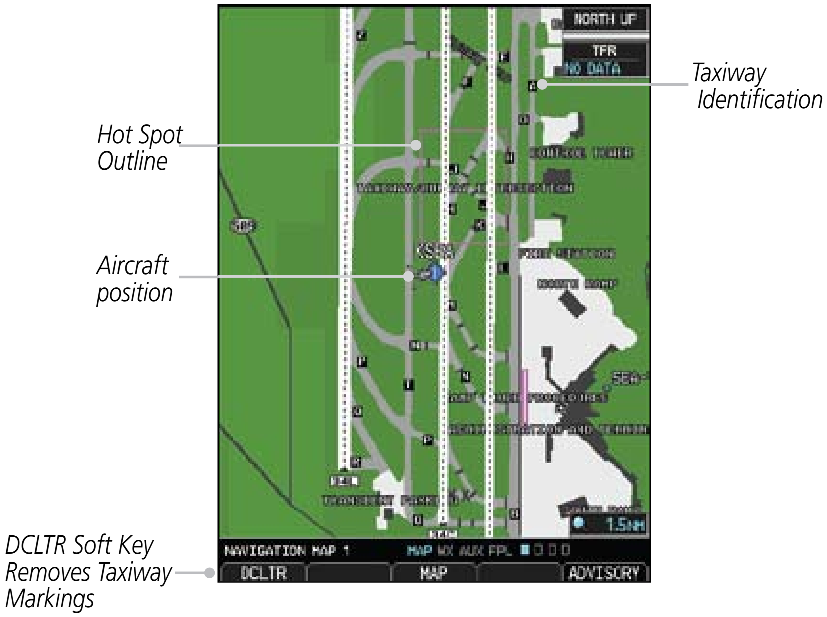

Taxiway Identification
Hot Spot Outline
Aircraft position
DCLTR Soft Key Removes Taxiway Markings
NORTH UP
TFR
NO DATA
1.5NM
NAVIGATION MAP 1
MAP WX AUX FPL
DCLTR
MAP
ADVISORY

Figure 5-15 SafeTaxi Depiction on the Navigation Map Page

## 5.4.1 Using SafeTaxi®

Any map page that displays the navigation view can also show the SafeTaxi® airport layout within the maximum configured range. The following is a list of pages where the SafeTaxi feature can be seen:

- Navigation Map Page
- Weather Datalink Page
- Airport Information Page
- Intersection Information Page
- NDB Information Page
- VOR Information Page
- User Waypoint Information Page

During ground operations the aircraft's position is displayed in reference to taxiways, runways, and airport features. When panning over the airport, features such as runway holding lines and taxiways are shown.

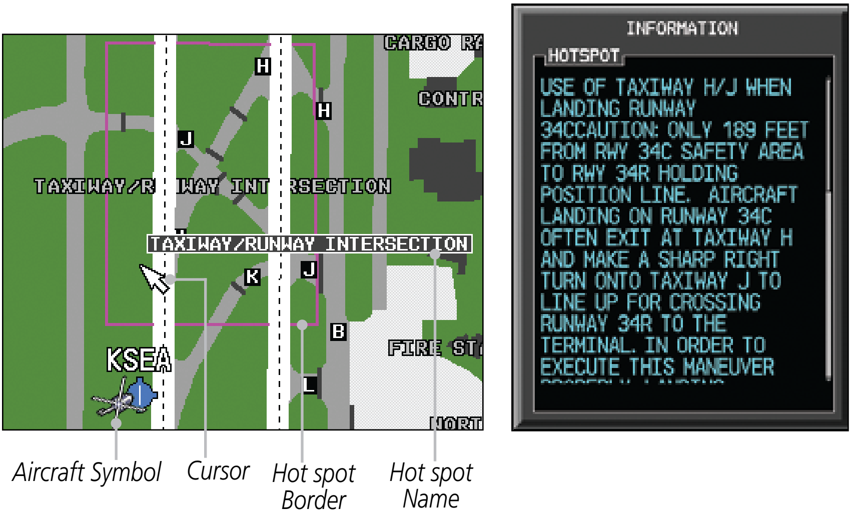
### 5.4.1.1 Decluttering

The **DCLTR** soft key (declutter) label advances to DCLTR-1, DCLTR -2, and DCLTR-3 each time the soft key is selected for easy recognition of decluttering level. Selecting the **DCLTR** soft key removes the taxiway markings and airport feature labels. Selecting the **DCLTR-1** soft key removes VOR station ID, the VOR symbol, and intersection names if within the airport plan view. Selecting the **DCLTR-2** soft key removes the airport runway layout, unless the airport in view is part of an active route structure. Pressing the **DCLTR-3** soft key cycles back to the original map detail. With Auto-Zoom enabled, the map will automatically zoom to 1 NM and DCLTR-0 upon landing so SafeTaxi can be viewed. Refer to Map Declutter Levels in the Navigation Map Section.

### 5.4.1.2 Hot Spot Information

Hot Spots can contain more information about the area that can be displayed when selected.

1. While viewing the Hot Spot area on the Navigation Map page, press the small **MFD** knob to activate the cursor.
2. Turn the **MFD** knobs to move the cursor on the Hot Spot border or into the Hot Spot area and then press the **ENT** key.


CARGO RA
CONTR
H
H
J
TAXIWAY/R WAY INT RSECTION
TAXIWAY/RUNWAY INTERSECTION
K
J
B
L
FIRE ST
NORT
KSEA
Aircraft Symbol
Cursor
Hot spot Border
Hot spot Name
INFORMATION
HOTSPOT

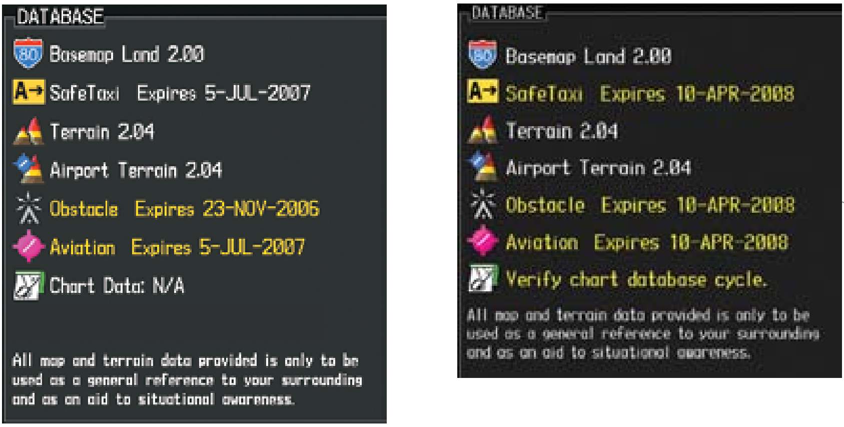
USE OF TAXIWAY H/J WHEN
LANDING RUNWAY
34CCAUTION: ONLY 189 FEET
FROM RWY 34C SAFETY AREA
TO RWY 34R HOLDING
POSITION LINE. AIRCRAFT
LANDING ON RUNWAY 34C
OFTEN EXIT AT TAXIWAY H
AND MAKE A SHARP RIGHT
TURN ONTO TAXIWAY J TO
LINE UP FOR CROSSING
RUNWAY 34R TO THE
TERMINAL. IN ORDER TO
EXECUTE THIS MANEUVER

**Figure 5-16  SafeTaxi Hot Spot Information**

3. An information window will be shown on the MFD. After viewing, press the small **MFD** knob, **CLR**, or **ENT** keys to remove the information window. Press the small **MFD** knob again to cancel the cursor.

## 5.4.2 SafeTaxi® Cycle Number and Revision

The SafeTaxi database is revised every 56 days. SafeTaxi is always available for use after the expiration date. When turning on the GDU 620, the Power-up Page indicates whether the databases are current, out of date, or not available. The Power-up Page shows the SafeTaxi database is current when the “SafeTaxi Expires” date is shown in white. When the SafeTaxi cycle has expired, the “SafeTaxi Expires” date appears in yellow. The message “SafeTaxi: N/A” appears in white if no SafeTaxi data is available on the database card.



DATABASE
Basemap Land 2.00
SafeTaxi Expires 5-JUL-2007
Terrain 2.04
Airport Terrain 2.04
Obstacle Expires 23-NOV-2006
Aviation Expires 5-JUL-2007
Chart Data: N/A

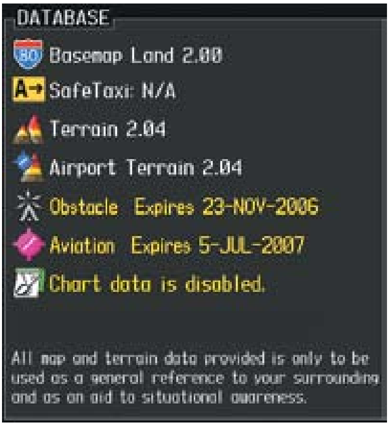
All map and terrain data provided is only to be used as a general reference to your surrounding and as an aid to situational awareness.

*SafeTaxi Database is Current*

DATABASE
Basemap Land 2.00
SafeTaxi Expires 10-APR-2008
Terrain 2.04
Airport Terrain 2.04
Obstacle Expires 10-APR-2008
Aviation Expires 10-APR-2008
Verify chart database cycle.

All map and terrain data provided is only to be used as a general reference to your surrounding and as an aid to situational awareness.

*SafeTaxi Database has Expired*



DATABASE
Basemap Land 2.00
SafeTaxi: N/A
Terrain 2.04
Airport Terrain 2.04
Obstacle Expires 23-NOV-2006
Aviation Expires 5-JUL-2007
Chart data is disabled.

All map and terrain data provided is only to be used as a general reference to your surrounding and as an aid to situational awareness.

*SafeTaxi Database Not Available*

**Figure 5-17 Power-up Page, SafeTaxi Database**

The SafeTaxi Region, Version, Cycle, Effective date and Expires date of the database cycle can also be found on the AUX - System Status page. SafeTaxi information appears in white and yellow text. The EFFECTIVE date appears in white when data is current and in yellow when the current date is before the effective date. The EXPIRES date appears in white when data is current and in yellow when expired. SafeTaxi REGION NOT AVAILABLE appears in white if SafeTaxi data is not available on the database card. Expired SafeTaxi data is never disabled.

# 5.5 XM® Radio Entertainment

***NOTE:*** *Refer to the Hazard Avoidance Section for information about XM Weather products.*

The optional XM® Radio entertainment feature of the GDL 69A Data Link Receiver is available for the pilot's and passengers' enjoyment. The GDL 69A can receive XM Satellite Radio entertainment services at any altitude throughout the Continental U.S. Entertainment audio is not available on the GDL 69 Data Link Receiver.

XM Satellite Radio offers a variety of radio programming over long distances without having to constantly search for new stations. Based on signals from satellites, coverage far exceeds land-based transmissions. XM Satellite Radio services are subscription-based. For more information on specific service packages, visit www.xmradio.com.

## 5.5.1 Activating XM® Satellite Radio Services

The service is activated by providing XM Satellite Radio with either one or two coded IDs, depending on the equipment. Either the Audio Radio ID or the Data Radio ID, or both, must be provided to XM Satellite Radio to activate the entertainment subscription. The XM Satellite Radio Activation Instructions are included with the unit (also available at www.garmin.com, P/N 190-00355-04).

It is not required to activate both the entertainment and weather service subscriptions with the GDL 69A. Either or both services can be activated. XM Satellite Radio uses one or both of the coded IDs to send an activation signal that, when received by the GDL 69A, allows it to play entertainment programming.

These IDs are located:

- On the label on the back of the Data Link Receiver
- On the XM Information Page on the MFD

Contact the installer if the Data Radio ID and the Audio Radio ID cannot be located.

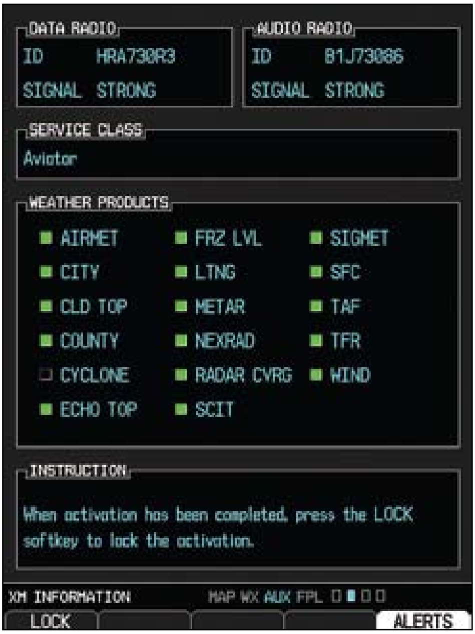
***NOTE:** The **LOCK** soft key on the XM Information Page (Auxiliary Page Group) is used to save GDL 69A activation data when the XM services are initially set up. It is not used during normal XM Radio operation, but there should be no adverse effects if inadvertently selected during flight. Refer to the GDL 69/69A XM Satellite Radio Activation Instructions (190-00355-04, Rev G, or later) for further information.*

1) Contact XM WX Satellite Radio through the e-mail address listed on their web site (www.xmradio.com) or by the customer service phone number listed on the web site (1-800-985-9200). Follow the instructions provided by XM Satellite Radio services.
2) Turn the large **MFD** knob to the AUX page group.
3) Turn the small **MFD** knob to the XM Information Page.
4) Verify that the desired services are activated.
5) Select the **LOCK** soft key.
6) Turn the large **MFD** knob to highlight "YES."
7) To complete activation, press the **ENT** key.

If XM weather services have not been activated, all the weather product boxes are cleared on the XM Information Page and a yellow Activation Required message is displayed in the center of the Weather Data Link Page (Map Page Group). The Service Class refers to the groupings of weather products available for subscription.

## 5.5.2 XM® Information

The Aux mode XM Information page displays information about the XM radios, service class, and products when the GDL 69/69A is installed and the XM Radio service is activated. The Data and Audio radios have separate Identification Numbers. The Service Class determines the features that are available. The Weather Products window shows the products with a solid box to the left of the product active with your subscription. The boxes for products not in your subscription will be hollow.



DATA RADIO
ID HRA730R3
SIGNAL STRONG

AUDIO RADIO
ID B1J73086
SIGNAL STRONG

SERVICE CLASS
Aviator

WEATHER PRODUCTS
■ AIRMET
■ CITY
■ CLD TOP
■ COUNTY
☐ CYCLONE
■ ECHO TOP
■ FRZ LVL
■ LTNG
■ METAR
■ NEXRAD
■ RADAR CVRG
■ SCIT
■ SIGMET
■ SFC
■ TAF
■ TFR
■ WIND

INSTRUCTION
When activation has been completed, press the LOCK softkey to lock the activation.

Figure 5-18 XM Information

1) In the AUX page group, turn the small **MFD** knob to display XM Information.

2) The **LOCK** soft key is used to “lock” your XM subscription activation. This is only used for the initial subscription or to make a change.

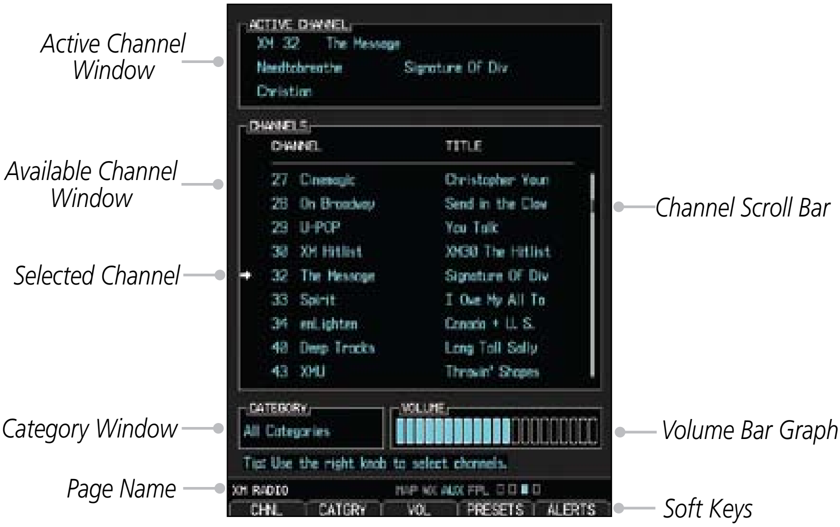
## 5.5.3 XM® Entertainment Radio

Audio entertainment is available through the XM Satellite Radio Service when activated in the optional installation of the GDL 69A. The GDU 620 serves as the display and control head for your remotely mounted GDL 69A. XM Satellite Radio allows you to enjoy a variety of radio programming over long distances without having to constantly search for new stations. Based on signal from satellites, coverage far exceeds land-based transmissions. When enabled, the XM Satellite Radio audio entertainment is accessible in Aux page group.

The information on the XM Satellite Radio display is composed of four areas: the Active Channel, Available Channels, Category of the highlighted channel, and the Volume setting. The Active Channel window shows the Channel Name and Number, Artist, Song Title, and Category.

1) Turn the large **MFD** knob to Aux Mode.

2) Turn the small **MFD** knob to the XM Radio page.


Active Channel Window
Available Channel Window
Selected Channel
Category Window
Page Name
Channel Scroll Bar
Volume Bar Graph
Soft Keys
ACTIVE CHANNEL
CHANNELS
CATEGORY
VOLUME
XM RADIO
MAP WX AUX FPL
CHNL
CATGRY
VOL
PRESETS
ALERTS

XM 32 The Message
Needtobreathe Signature Of Div
Christian

| CHANNEL | TITLE |
|---|---|
| 27 Cinemagic | Christopher Youn |
| 28 On Broadway | Send in the Clow |
| 29 U-POP | You Talk |
| 30 XM Hitlist | XM30 The Hitlist |
| → 32 The Message | Signature Of Div |
| 33 Spirit | I Owe My All To |
| 34 enLighten | Canada + U.S. |
| 40 Deep Tracks | Long Tall Sally |
| 43 XMU | Throwin' Shapes |

All Categories

Tip: Use the right knob to select channels.

Figure 5-19 XM Radio

### 5.5.3.1 Channel Categories

The Category window displays the currently selected category of audio. Categories of channels, such as Jazz, Rock, or News, can be selected to list the available channels for a type of music or other contents.

1) While viewing the XM Radio page of the AUX page group, press the **CATGRY** soft key to activate Category selection.

2) Turn the small **MFD** knob to select the desired category. When the MFD knob is turned to select a category, the soft keys will not be shown.

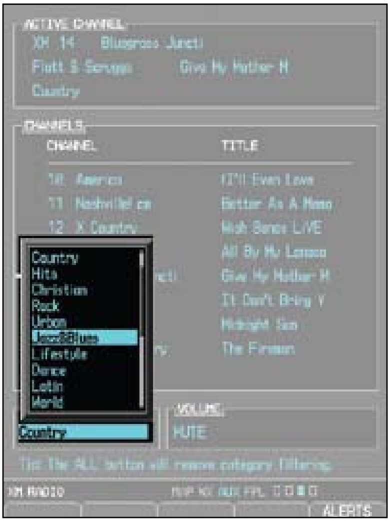

ACTIVE CHANNEL
XM 14 Bluegrass Juncti
Flatt & Scruggs Give My Mother M
Country
CHANNELS
CHANNEL
TITLE
10 America
11 Nashville! cn
12 X Country
Country
Hits
Christian
Rock
Urban
Jazz&Blues
Lifestyle
Dance
Latin
World
Country
VOLUME
MUTE
XM RADIO
ALERTS

**Figure 5-20 XM Category List**

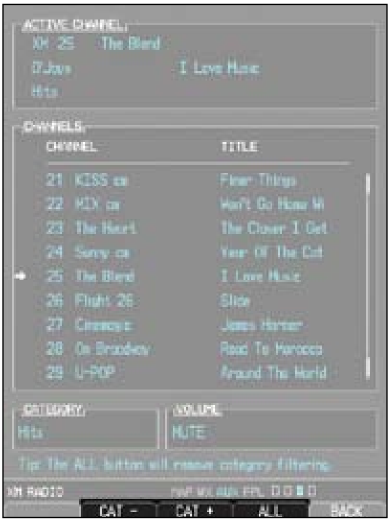

ACTIVE CHANNEL
XM 25 The Blend
CHANNELS
CHANNEL
TITLE
21 KISS cn
22 MIX cn
23 The Heart
24 Sunny cn
25 The Blend
26 Flight 26
27 Cinemagic
28 On Broadway
29 U-POP
CATEGORY
Hits
VOLUME
MUTE
XM RADIO
CAT -
CAT +
ALL
BACK

**Figure 5-21 XM Category Soft Keys**

3) Press **ENT** to display the list of channels for the highlighted category in the Channels window.

4) Press the small **MFD** knob to cancel selection or to end editing.

OR

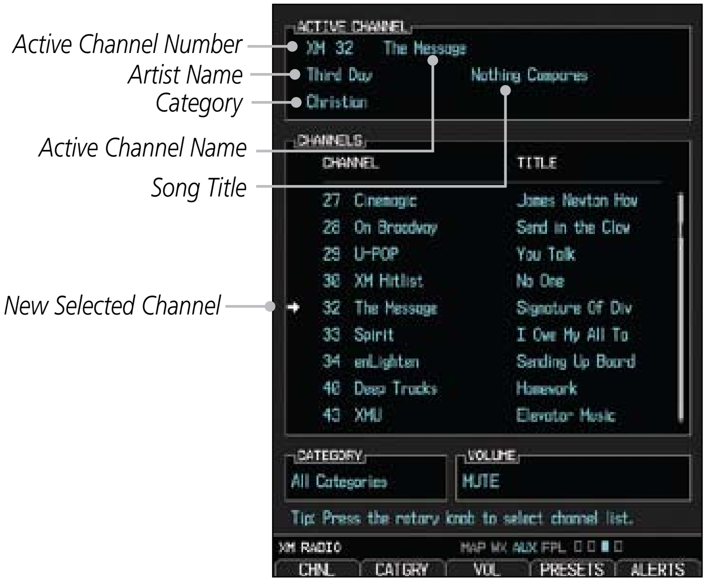
1) Press **CATGRY** and then the **CAT +** or **CAT –** soft keys to increment up or down one category at a time.

2) Press **ALL** to show the channels for all categories. Use the large and small **MFD** knobs to select desired channel.

3) Press **ENT** to save the selection or press the small **MFD** knob to cancel selection.

### 5.5.3.2 Selecting an XM® Radio Channel

The Channel feature is used to navigate through the channels in the selected category.


Active Channel Number
Artist Name
Category
Active Channel Name
Song Title
New Selected Channel
ACTIVE CHANNEL
CHANNELS
CATEGORY
VOLUME
XM RADIO
MAP WX AUX FPL
CHNL
CATGRY
VOL
PRESETS
ALERTS

XM 32 The Message
Third Day Nothing Compares
Christian

| CHANNEL | TITLE |
|---|---|
| 27 Cinemagic | James Newton How |
| 28 On Broadway | Send in the Clow |
| 29 U-POP | You Talk |
| 30 XM Hitlist | No One |
| ➔ 32 The Message | Signature Of Div |
| 33 Spirit | I Owe My All To |
| 34 enLighten | Sending Up Board |
| 40 Deep Tracks | Homework |
| 43 XMU | Elevator Music |

All Categories

MUTE

Tip: Press the rotary knob to select channel list.

**Figure 5-22 XM Channel Selection**

1) While viewing the XM Radio page of the AUX page group, press the small **MFD** knob and then turn the small **MFD** knob to select the desired channel.

2) Press **ENT** to make the highlighted channel the Active Channel.

***NOTE:*** *A delay of several seconds may occur when selecting a channel. The listed title may end before the radio begins playing the current Active Channel material.*

3) Press the small **MFD** knob to cancel selection or to end editing.

OR

4) Press **CHNL** and then the **CH +** or **CH –** soft keys to increment up or down one channel at a time in the active category.

OR

5) Press **CHNL** and then the **DIR CH** soft key to directly select a channel in the active category. Use the large and small **MFD** knobs to select desired channel.

6) Press **ENT** to save the selection or press the small **MFD** knob to cancel selection.

### 5.5.3.3 XM® Radio Volume

The Volume control allows you to set the audio volume level, as well as mute the audio.

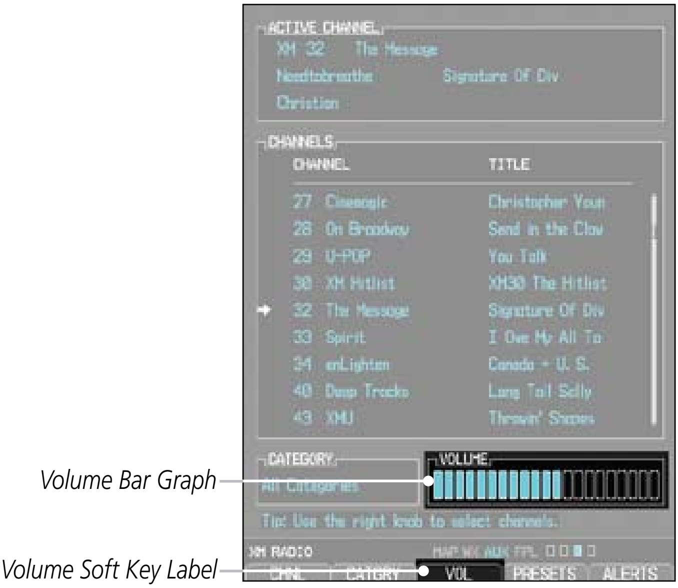

Volume Bar Graph
Volume Soft Key Label
ACTIVE CHANNEL
XM 32 The Message
Needtobreathe
Signature Of Div
Christian
CHANNELS
CHANNEL
TITLE
27 Classic
28 On Broadway
29 U-POP
30 XM Hitlist
32 The Message
33 Spirit
34 enLighten
40 Deep Tracks
43 XMU
Christopher Young
Send in the Clow
You Talk
XM30 The Hitlist
Signature Of Div
I Owe My All To
Canada - U. S.
Long Tall Sally
Throwin' Shapes
CATEGORY
All Categories
VOLUME
Tip: Use the right knob to select channels.
XM RADIO
MAP WX AUX FPL
CHNL
CATGRY
VOL
PRESETS
ALERTS

**Figure 5-23 XM Radio Volume Setting**

1. While viewing the XM Radio page of the AUX page group, press the **VOL** soft key.
2. Press the **VOL +** or **VOL –** soft keys, or turn the small **MFD** knob, to adjust the radio volume.

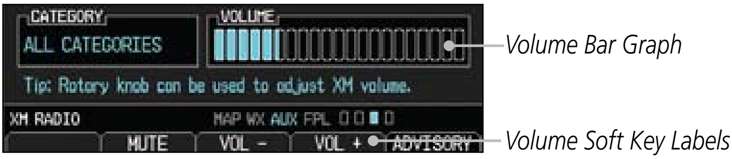

CATEGORY
ALL CATEGORIES
VOLUME
Tip: Rotary knob can be used to adjust XM volume.
XM RADIO
MAP WX AUX FPL
MUTE
VOL –
VOL +
ADVISORY
Volume Bar Graph
Volume Soft Key Labels

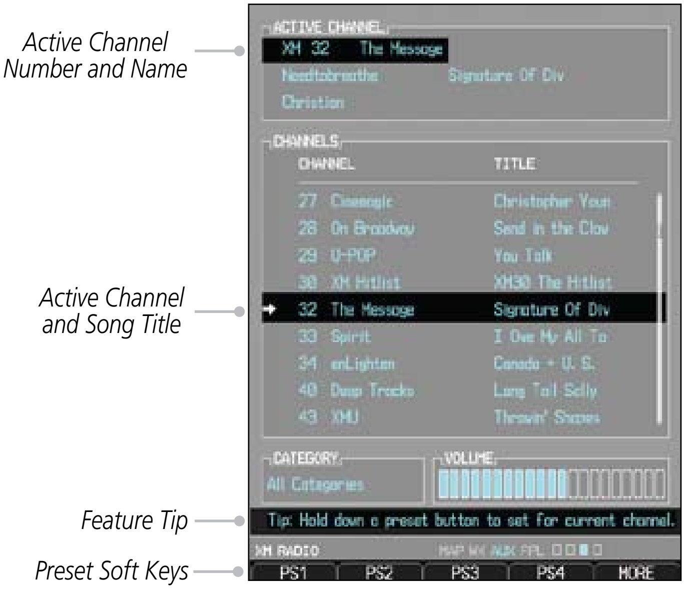
**Figure 5-24 XM Radio Volume Controls**

3) Press **MUTE** to mute the radio volume.

4) Press **MUTE** again or the **VOL +** or **VOL –** soft keys to unmute the radio volume.

### 5.5.3.4 XM® Radio Channel Presets

The **PRESET** soft key allows you to store the Active Channel into a selected preset position for easy later recall. A delay of several seconds can occur when setting or recalling a preset.



ACTIVE CHANNEL
XM 32 The Message
Needtobreathe Signature Of Div
Christian

CHANNELS

| CHANNEL | TITLE |
|---|---|
| 27 Cinemagic | Christopher Youn |
| 28 On Broadway | Send in the Clow |
| 29 U-POP | You Talk |
| 30 XM Hitlist | XM30 The Hitlist |
| 32 The Message | Signature Of Div |
| 33 Spirit | I Owe My All To |
| 34 enLighten | Canada + U. S. |
| 40 Deep Tracks | Long Tall Sally |
| 43 XMU | Throwin' Shapes |

CATEGORY
All Categories

VOLUME

Tip: Hold down a preset button to set for current channel.

XM RADIO MAP WX AUX FPL

PS1 PS2 PS3 PS4 MORE

Figure 5-25 XM Radio Presets

#### *Setting a Preset*

1) While viewing the XM Radio page of the AUX page group, you may set a preset for the Active Channel. Press the **PRESETS** soft key.

2) Press and hold a preset soft key, such as **PS1**.

3) Press the **MORE** soft key to display the next series of presets.

#### *Recalling a Preset*

1) While viewing the XM Radio page of the AUX page group, press the **PRESETS** soft key.

2) Press the preset soft key for the desired stored channel, such as **PS1**.

3) Press the **MORE** soft key to display the next series of presets.

## 5.5.4 GDL 69/69A Data Link Receiver Troubleshooting

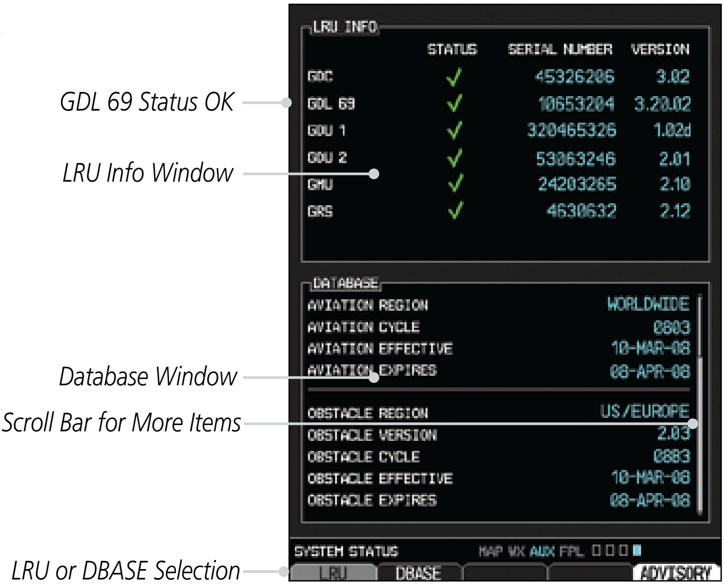
Some quick troubleshooting steps listed below can be performed to find the possible cause of a failure.

- Ensure the owner/operator of the aircraft in which the Data Link Receiver is installed has subscribed to XM
- Ensure the XM subscription has been activated
- Perform a quick check of the circuit breakers to ensure that power is applied to the Data Link Receiver

For troubleshooting purposes, check the LRU Information Box on the AUX - System Status Page for Data Link Receiver (GDL 69/69A) status, serial number, and software version number. If a failure has been detected in the GDL 69/69A the status will be marked with a red "X."

1) Turn the large **MFD** knob to select the AUX Page Group.

2) Turn the small **MFD** knob to select the System Status Page (the last page in the AUX Page Group).


GDL 69 Status OK
LRU Info Window
Database Window
Scroll Bar for More Items
LRU or DBASE Selection
LRU INFO
DATABASE
SYSTEM STATUS
MAP WX AUX FPL
LRU
DBASE
ADVISORY

|  | STATUS | SERIAL NUMBER | VERSION |
|---|---|---|---|
| GDC | ✓ | 45326206 | 3.02 |
| GDL 69 | ✓ | 10653204 | 3.20.02 |
| GDU 1 | ✓ | 320465326 | 1.02d |
| GDU 2 | ✓ | 53063246 | 2.01 |
| GMU | ✓ | 24203265 | 2.10 |
| GRS | ✓ | 4630632 | 2.12 |

|  |  |
|---|---|
| AVIATION REGION | WORLDWIDE |
| AVIATION CYCLE | 0803 |
| AVIATION EFFECTIVE | 10-MAR-08 |
| AVIATION EXPIRES | 08-APR-08 |
| OBSTACLE REGION | US/EUROPE |
| OBSTACLE VERSION | 2.03 |
| OBSTACLE CYCLE | 0803 |
| OBSTACLE EFFECTIVE | 10-MAR-08 |
| OBSTACLE EXPIRES | 08-APR-08 |

Figure 5-26 LRU Status Window

## 5.6 Garmin Synthetic Vision Technology (SVT™) (Optional)

The optional Garmin Synthetic Vision Technology (SVT™) is a visual enhancement to the G500H. SVT is displayed as a forward-looking display of the topography immediately in front of the aircraft. SVT information is shown on the primary flight display (PFD). The depicted imagery is derived from the aircraft attitude, heading, GPS three-dimensional position, and a database of terrain, obstacles, and other relevant features.

***NOTE:** Not all flight directors are supported with SVT enabled. Check your AFMS to determine if your flight director is supported with SVT enabled.*

The following SVT enhancements appear on the PFD:

- Flight Path Marker
- Horizon Heading Marks
- Traffic Display
- Airport Signs
- Runway Display
- Terrain Alerting
- Obstacle Alerting
- Water
- Zero-Pitch Line

Standard Terrain - SVT is integrated within SVT to provide visual and audible alerts to indicate the presence of terrain threats relative to the projected flight path. In addition to the Terrain - SVT alerts, SVT offers a three-dimensional view of terrain and obstacles. Terrain and/or obstacles that pose a threat to the aircraft in flight are shaded yellow or red.

***NOTE:** SVT will become disabled if the databases necessary to display SVT are unavailable (generating a GDU DB ERR or SVT DISABLED alert) or AHRS or GPS data is unavailable. SVT may be restored once the fail conditions are removed by reactivating SVT as explained in the SVT Operation section.*

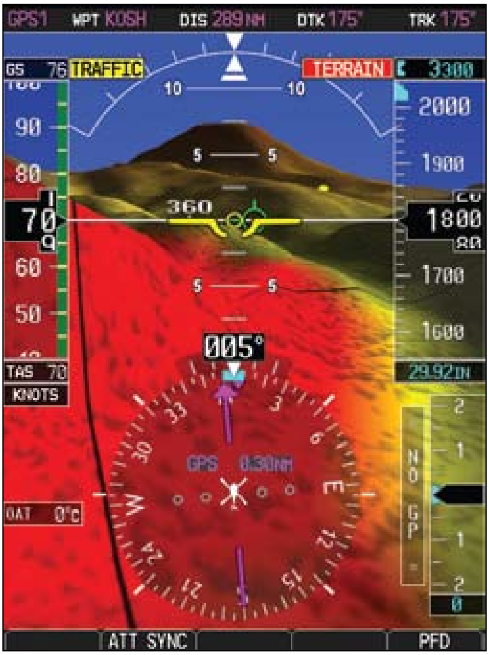

GPS1
WPT KOSH
DIS 289 NM
DTK 175°
TRK 175°
GS 76
TRAFFIC
TERRAIN
3300
10
10
2000
90
1900
80
5
5
360
70
1800
60
1700
50
1600
005°
TAS 70
KNOTS
29.92IN
33
3
30
6
W
E
GPS 0.30NM
OAT 0°C
24
12
21
15
NO GP
2
1
1
2
0
ATT SYNC
PFD

Figure 5-27 Synthetic Vision Imagery - PFD

## 5.6.1 Garmin SVT™ Operation

Garmin SVT™ is activated from the PFD using the soft keys located along the bottom edge of the display. Pressing the soft keys turn the related function on or off.

SVT functions are displayed on three levels of soft keys. The **PFD** soft key leads into the PFD function soft keys, including synthetic vision. Pressing the **SYN VIS** soft key enables synthetic vision and displays the **SYN TERR**, **HRZN HDG**, and **APTSIGNS** soft keys. The **BACK** soft key returns to the previous level of soft keys.

**HRZN** and **APTSIGNS** soft keys are dependent upon the state of the **SYN TERR** soft key. When Synthetic Terrain is deactivated, the **SYN TERR** soft key appears illuminated while the remaining SVT soft keys are unavailable for selection and subdued (black with dark-gray characters). If Synthetic Terrain is deactivated, all other SVT features are also deactivated. With Synthetic Terrain activated, all other SVT features may be turned on or off at the pilot's discretion.

- SYN TERR soft key enables synthetic terrain depiction.
- HRZN HDG soft key enable horizon heading marks and digits.
- APTSIGNS soft key enables airport signposts.

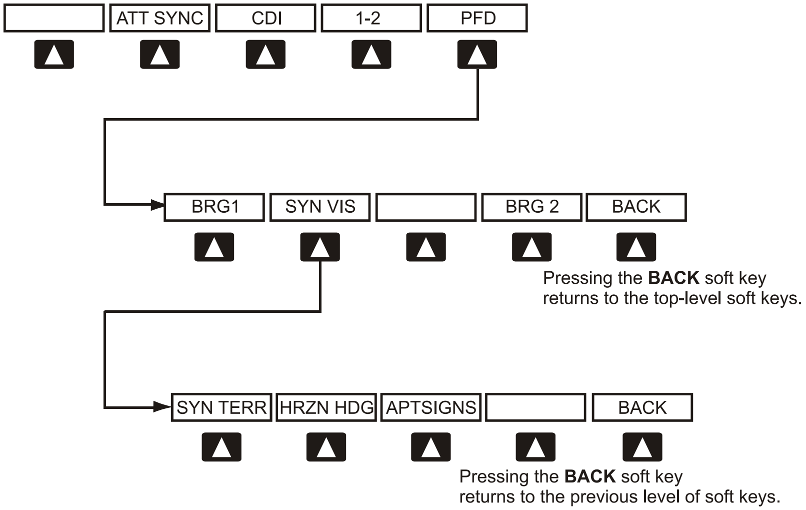

ATT SYNC
CDI
1-2
PFD
BRG1
SYN VIS
BRG 2
BACK
Pressing the **BACK** soft key returns to the top-level soft keys.
SYN TERR
HRZN HDG
APTSIGNS
BACK
Pressing the **BACK** soft key returns to the previous level of soft keys.

Figure 5-28 SVT Soft Keys

## 5.6.2 Activating and Deactivating Garmin SVT™

***NOTE:*** *In some instances, such as temporary loss of GPS signal, the SVT functionality will be disabled.*

**To enable SVT:**

1) Press the **PFD** soft key.
2) Press the **SYN VIS** soft key.
3) Press the **SYN TERR** soft key to view the SVT display.

When SVT is enabled, the pitch ladder will display a different pitch scale.

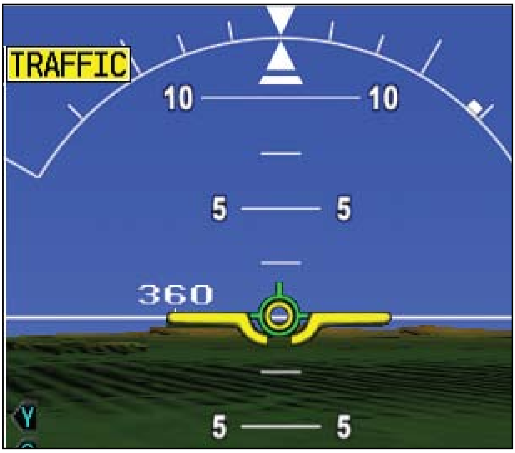


Figure 5-29 Pitch Scale with SVT Enabled

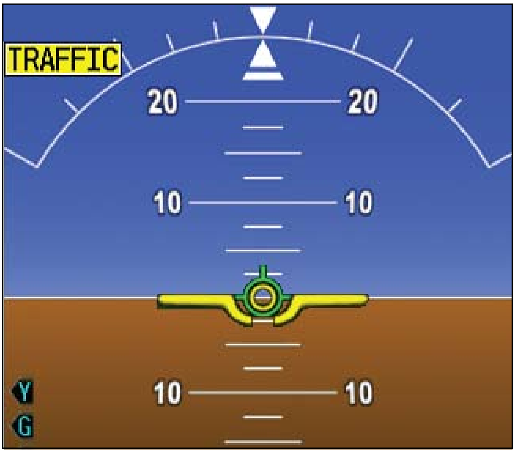


Figure 5-30 Pitch Scale with SVT Disabled

## 5.6.3 Garmin SVT™ Features

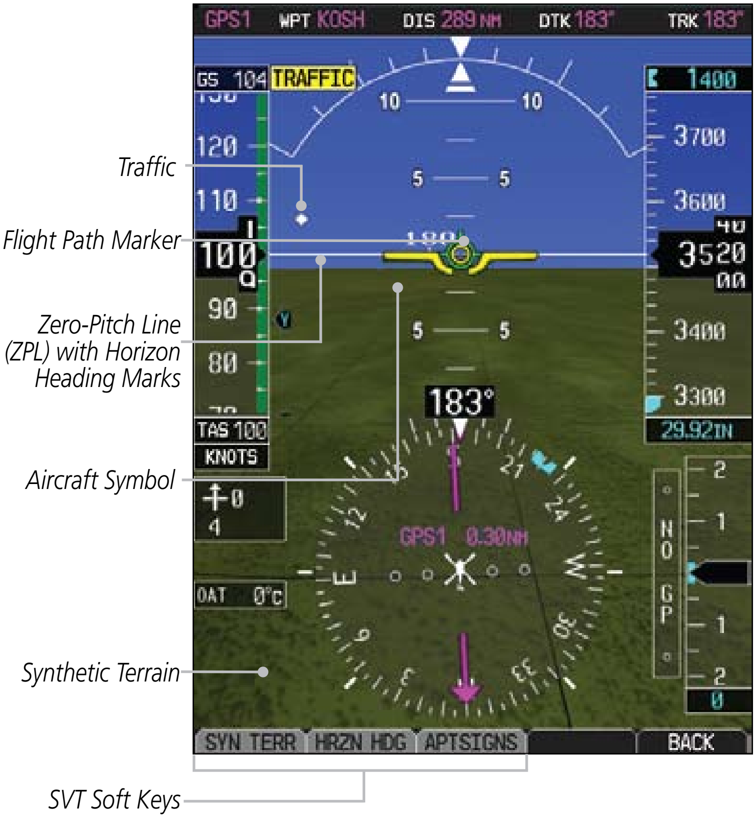

GPS1
WPT KOSH
DIS 289NM
DTK 183°
TRK 183°
GS 104
TRAFFIC
1400
10
10
120
3700
5
5
110
3600
100
3520
90
5
5
3400
80
183°
3300
TAS 100
KNOTS
29.92IN
GPS1 0.30NM
OAT 0°C
SYN TERR
HRZN HDG
APTSIGNS
BACK
Traffic
Flight Path Marker
Zero-Pitch Line (ZPL) with Horizon Heading Marks
Aircraft Symbol
Synthetic Terrain
SVT Soft Keys

Figure 5-31 SVT on Primary Flight Display

***NOTE:** SVT features are not a substitute for standard course and altitude deviation information using the CDI, VSI, and VDI presentations.*

### 5.6.3.1 Flight Path Marker (FPM)

The Flight Path Marker is also known as a Velocity Vector. It is displayed on the PFD at ground speeds above 30 knots. The FPM depicts approximate projected path of the aircraft accounting for wind speed and direction relative to the three-dimensional display.

### 5.6.3.2 Zero-Pitch Line

The Zero-Pitch Line is drawn completely across the display and represents the aircraft attitude with respect to the horizon. It is not necessarily aligned with the terrain horizon, particularly when the terrain is sloped or mountainous.

### 5.6.3.3 Horizon Heading

The Horizon Heading is synchronized with the HSI and shows compass headings in 30-degree increments on the Zero-Pitch Line. Horizon heading tick marks and digits appearing on the zero-pitch line are not visible when they are behind either the airspeed or altitude display. Horizon Heading is activated and deactivated by pressing the **HRZN HDG** soft key.

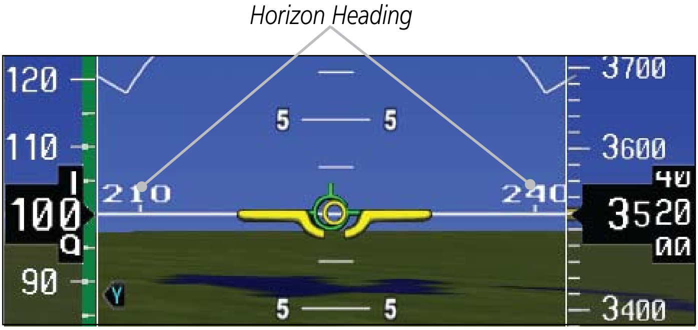

Horizon Heading
120
110
100
90
5
5
210
240
5
5
3700
3600
40
3520
00
3400

Figure 5-32 Horizon Heading

### 5.6.3.4 Airport Signs

Airports Signs provide a visual representation of airport location and identification on the synthetic terrain display. When activated, the signs appear on the display when the aircraft is approximately 15 NM from an airport and disappear at approximately 4.5 NM. Airport signs are shown without the identifier until the aircraft is approximately 9 NM from the airport. Airport signs are shown behind the airspeed or altitude display. Airport signs are activated and deactivated by pressing the **APT SIGNS** soft key.

***NOTE:** Heliport signs will not appear on the synthetic terrain display.*

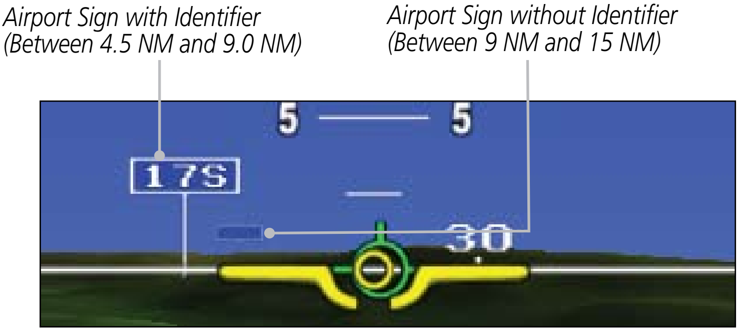

Airport Sign with Identifier (Between 4.5 NM and 9.0 NM)
Airport Sign without Identifier (Between 9 NM and 15 NM)
5
5
17S
30

Figure 5-33 Airport Signs

### 5.6.3.5 Runway Depiction

Runways are shown on the PFD in various ways. Soft surface runways, such as grass runways, are depicted in green. Hard surface runways, such as asphalt, are depicted in gray. Your flightplan will determine how the runway is displayed on the PFD.

Without a loaded flightplan, a runway is shown as dark gray with the boundaries of the runway in light gray.

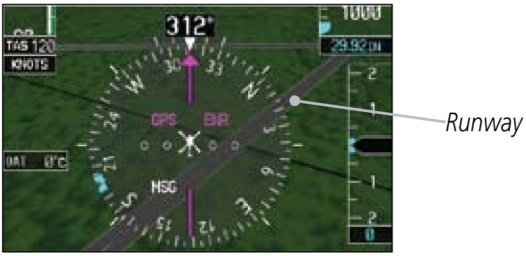


Figure 5-34 Depiction of Runway with a Loaded Flightplan

A runway that is not in a loaded flightplan is shown as dark gray with no other colors.

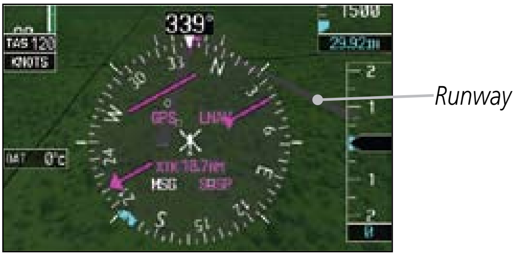


Figure 5-35 Depiction of Runway Not in Loaded Flightplan

A runway that is associated with an approach in the loaded flightplan is outlined with a white rectangle, with the actual runway, in that rectangle.

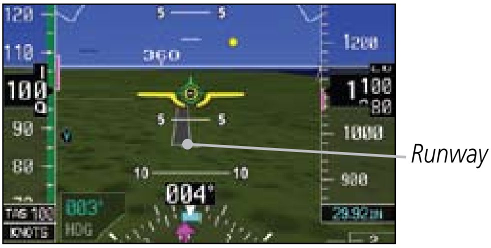
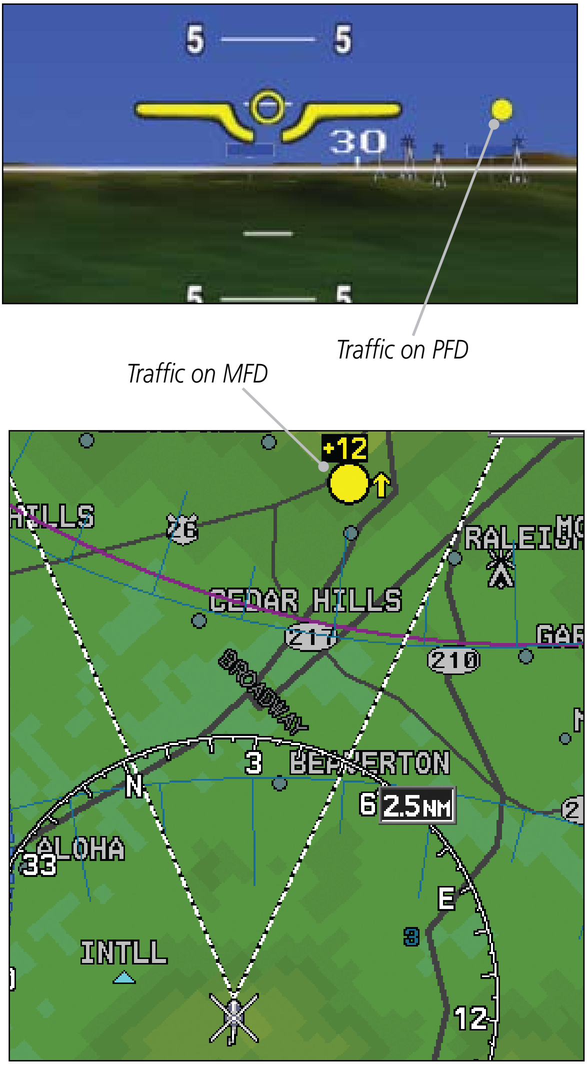


Figure 5-36 Depiction of Runway with Loaded Approach

### 5.6.3.6 Traffic

Traffic symbols are displayed in their approximate respective location as determined by the related traffic systems, either TIS or TAS. Traffic is displayed in three dimensions, appearing larger as they are getting closer, and smaller when they are further away. Traffic symbol coloring and shaping is the same as that used for traffic displayed in the inset moving map or MFD traffic page.



Traffic on PFD

Traffic on MFD

5
5
30
+12
HILLS
CEDAR HILLS
RALEIGH
BROADWAY
210
BEAVERTON
N
3
6
2.5NM
E
ALOHA
33
INTLL
12

Figure 5-37  Traffic Depiction on PFD and MFD

### 5.6.3.7 Obstacles

Obstacles are represented on the synthetic display by standard two-dimensional tower symbols found on the MFD maps and charts. Obstacle symbols appear in the perspective view with relative height above terrain and distance from the aircraft.

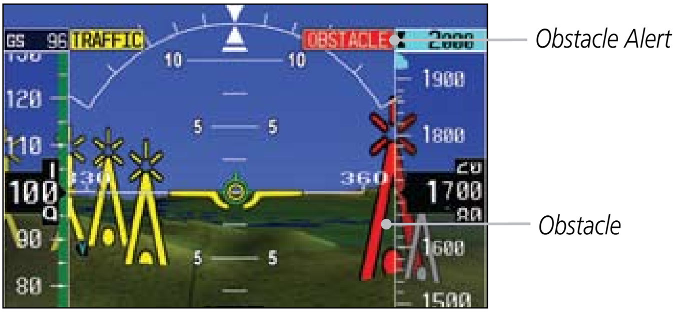
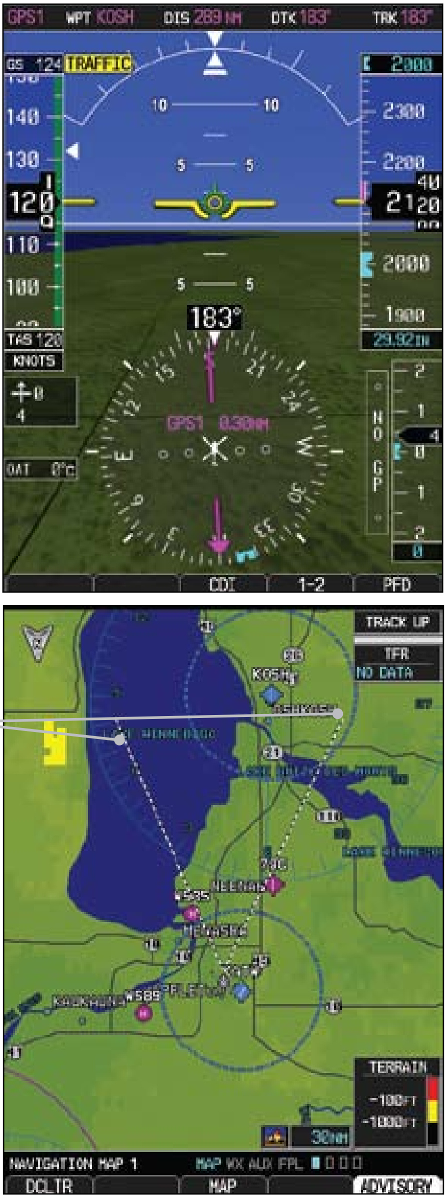

GS 96
TRAFFIC
OBSTACLE
2000
1900
1800
1700
1600
1500
120
110
100
90
80
10
5
360
Obstacle Alert
Obstacle

Figure 5-38 Obstacle Depiction on PFD

Unlike the MFD moving map display, obstacles on the synthetic terrain display do not change colors to warn of potential conflict with the aircraft's flight path until the obstacle is associated with an actual FLTA alert. Obstacles greater than 1000 feet below the aircraft's altitude are not shown. Obstacles are shown behind the airspeed and altitude displays.

### 5.6.3.8 Field of View

The PFD Field of View can be represented on the MFD Navigation Map Page lateral image. Two dashed lines forming a V-shape in front of the aircraft symbol on the MFD with an angle of approximately 50° represent the forward horizontal field of view shown on the PFD.

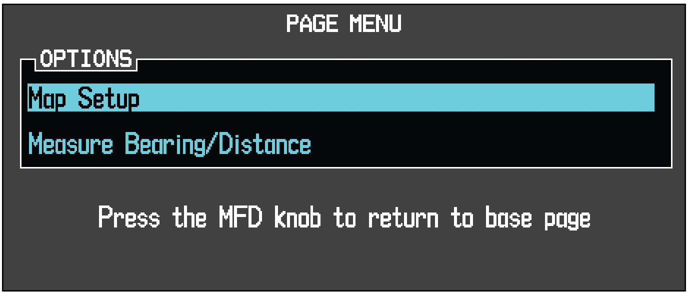

GPS1
WPT KOSH
DIS 283 NM
DTK 183°
TRK 183°
GS 124
TRAFFIC
TAS 120
KNOTS
OAT 0°C
183°
GPS1 0.30NM
29.92IN
CDI
1-2
PFD
TRACK UP
TFR
NO DATA
TERRAIN
-100FT
-1000FT
30NM
NAVIGATION MAP 1
MAP WX AUX FPL
DCLTR
MAP
ADVISORY

*V-Shaped Lines Depict PFD Field of View (angle is approx. 50°)*

Figure 5-39 MFD and PFD Field of View Comparison

### To configure the Field of View:

1) While viewing the Navigation Map 1 or 2 of the Map Page Group, press the **MENU** key to display the **PAGE MENU**.



PAGE MENU

OPTIONS

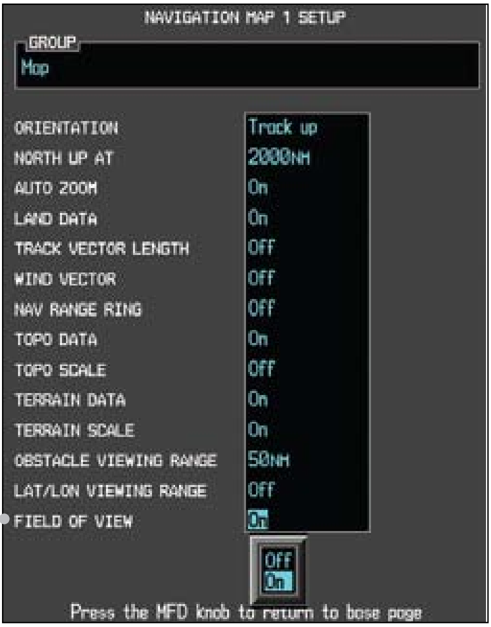
Map Setup

Measure Bearing/Distance

Press the MFD knob to return to base page

**Figure 5-40 Page Menu**

2) Press the **ENT** key to bring up the setup page.



NAVIGATION MAP 1 SETUP

GROUP

Map

| | |
|---|---|
| ORIENTATION | Track up |
| NORTH UP AT | 2000NM |
| AUTO ZOOM | On |
| LAND DATA | On |
| TRACK VECTOR LENGTH | Off |
| WIND VECTOR | Off |
| NAV RANGE RING | Off |
| TOPO DATA | On |
| TOPO SCALE | Off |
| TERRAIN DATA | On |
| TERRAIN SCALE | On |
| OBSTACLE VIEWING RANGE | 50NM |
| LAT/LON VIEWING RANGE | Off |
| FIELD OF VIEW | On |

Off<br>On

Press the MFD knob to return to base page

*Field of View*

**Figure 5-41 Map Setup Items**

3) Turn the large **MFD** knob to scroll through the options to FIELD OF VIEW.

4) Turn the small **MFD** knob to select On or Off. Press the **ENT** key to confirm your selection.

5) Press the small **MFD** knob to return to the Navigation Map Page.

### 5.6.3.9 Unusual Attitudes

Unusual attitudes are displayed with red chevrons overlaid on the display, pointing to the direction to fly to correct the unusual attitude condition. The display shows either a brown or blue band of color at the top or bottom of the screen to represent earth or sky. This is intended to prevent losing sight of the horizon during extreme pitch attitudes.

Two conditions that inhibit SVT and generate alerts on the PFD:

- The position of the aircraft exceeds the range of the terrain database.
- The terrain database is out of date using an older terrain database card.

*Blue Band - Sky Representation*

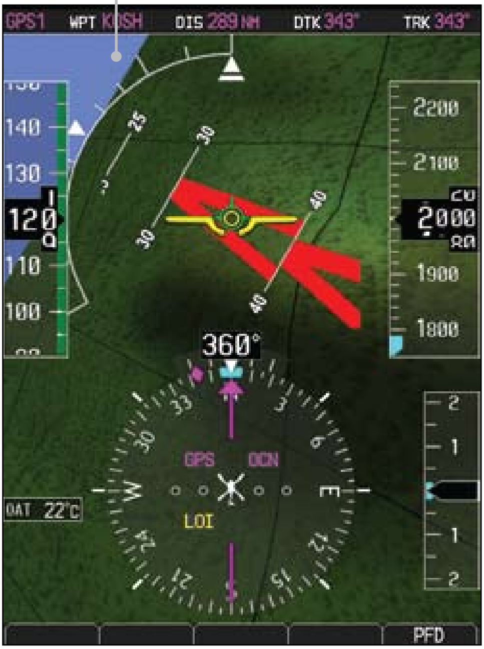
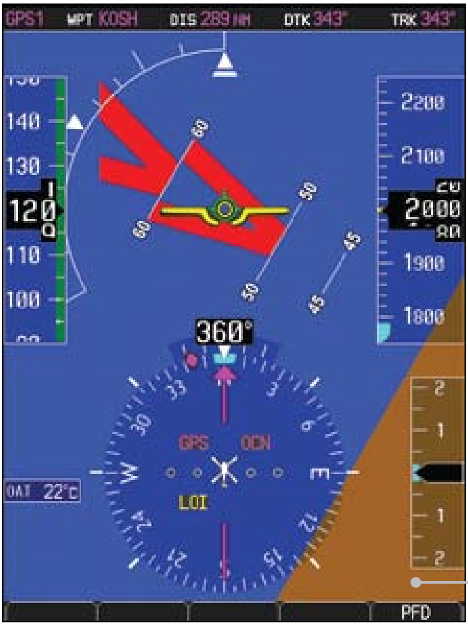
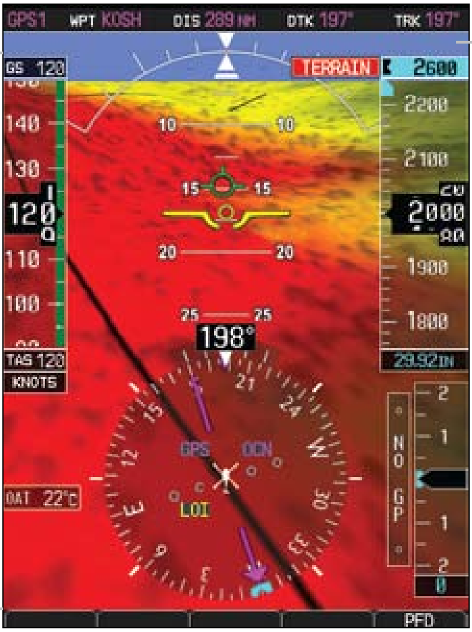

GPS1
WPT KOSH
DIS 289 NM
DTK 343°
TRK 343°
140
130
120
110
100
2200
2100
2000
1900
1800
25
30
30
40
40
360°
33
30
3
6
W
E
GPS
OCN
LOI
OAT 22°C
24
21
15
12
2
1
1
2
PFD

Figure 5-42 Unusual Attitude Display - Blue Band


GPS1
WPT KOSH
DIS 289 NM
DTK 343°
TRK 343°
140
130
120
110
100
2200
2100
2000
1900
1800
360°
GPS
OCN
LOI
OAT 22°C
PFD

*Brown Band - Ground Representation*

Figure 5-43  Unusual Attitude Display - Brown Band


GPS1
WPT KOSH
DIS 289 NM
DTK 197°
TRK 197°
GS 120
TERRAIN
2600
140
130
120
110
100
2200
2100
2000
1900
1800
198°
TAS 120
KNOTS
29.92IN
NO GP
GPS
OCN
LOI
OAT 22°C
PFD

*Blue Band - Sky Representation*

*Terrain Fills Display*

Figure 5-44  Blue Sky Bar with Full Display Terrain

*This page intentionally left blank*

# 6 ANNUNCIATIONS AND ALERTS

## 6.1 Alerts

| Alert Message | Description | Action |
|---|---|---|
| **ADC1 ALT EC** | - ADC Altitude Error Correction is unavailable.<br>- The alert is enabled and the GDC is reporting that altitude correction is unavailable. | - Contact your Garmin dealer for service. |
| **AHRS1/2 GPS** | - AHRS1/2 not receiving any GPS information.<br>- AHRS1/2 operating exclusively in no-GPS reversionary mode.<br>- AHRS1/2 using backup GPS source.<br>- AHRS1/2 not receiving backup GPS information.<br>- Two GPS devices are configured as present and AHRS1 is not receiving GPS data from the backup (2nd) device. | - Verify navigators are on and have a GPS signal and are not in self-test mode.<br>- Check AFMS for limitations.<br>- Contact your Garmin dealer for service. |

| Alert Message | Description | Action |
|---|---|---|
| **AHRS1/2 SRVC** | • AHRS1/2 magnetic-field model needs update.<br>• Appears on ground only. | • AHRS magnetic field model should be upgraded.<br>• Contact your Garmin dealer for service. |
| **AHRS1/2 TAS** | • AHRS1/2 not receiving true airspeed from ADC.<br>• Displayed heading and attitude data is still valid.<br>• Additional loss of GPS data will cause loss of heading and attitude data. | • Check ADC cable.<br>• Contact your Garmin dealer for service. |
| **AUD NOT AVAIL** | • Audio system not available. | • Contact your Garmin dealer for service. |
| **AUD SYS FAIL** | • Audio system failure. | • Contact your Garmin dealer for service. |
| **CAL LOST** | • Calibration Data Lost. | • Contact your Garmin dealer for service. |
| **CNFG MISMATCH** | • GDU 1-2 airframe configuration settings disagree. | • Contact your Garmin dealer for service. |
| **CNFG MODULE** | • GDU configuration module is inoperative. | • Contact your Garmin dealer for service. |
| **DATA LOST** | • Pilot stored data was lost. Recheck data and settings. | • Reset your settings.<br>• G500H pilot configurable items have been returned to default settings. |
| **DIAG MODE** | • System is in Diagnostic Mode. | |

| Alert Message | Description | Action |
|---|---|---|
| **EXTERNAL TAWS FAIL** | • External TAWS device has failed. | • Contact your Garmin dealer for service. |
| **FAN 1/2 FAIL** | • Cooling fan 1/2 has failed.<br>• Unit may operate at extreme temperatures<br>• Extended operation at high temperatures is not recommended as damage to the GDU may occur.<br>• PFD/MFD coloration may be incorrect.<br>• Backlight may dim to reduce power and heat. | • Contact your Garmin dealer for service. |
| **GATE MODE** | • Automated testing is on. | |
| **GDL69** | • GDL 69 has failed. | • Contact your Garmin dealer for service. |
| **GEO LIMITS** | • AHRS1 too far North/South, no magnetic heading provided.<br>• Operating in extreme north latitudes has rendered heading data unreliable. | • Use alternate means of navigation.<br>• Check AFMS for limitations. |
| **GPS1/2 FAIL** | • Communication lost with GPS1/2. | • Use an alternate navigation source. |

| Alert Message | Description | Action |
|---|---|---|
| **GPS(1/2) PPS FAIL** | - Timing data from GPS 1/2 is lost. | - Contact your Garmin dealer for service. |
| **GSR FAIL** | - GSR has failed. | - Contact your Garmin dealer for service. |
| **GWX SERVICE** | - GWX needs service. | - Contact your Garmin dealer for service. |
| **HDG FAULT** | - AHRS1/2 in no-magnetometer reversionary mode.<br>- Heading fault state on AHRS.<br>- Heading data is unreliable. | - Check AFMS for limitations.<br>- Use Compass or other course information.<br>- Contact your Garmin dealer for service. |
| **HDG LOST** | - HDG features disabled or defaulted to GPS1 TRK.<br>- GDU is in the reversionary track-based mode. | |
| **<LRU> CONFIG** | - Error in the configuration of a specific LRU, where <LRU> denotes a specific LRU, such as GDL69 or GWX. | - Config service required. Contact your Garmin dealer for service. |
| **<LRU> COOLING** | - <LRU> has poor cooling. Reducing power usage by dimming display. | - Specific LRU has poor cooling, where <LRU> denotes the specific LRU and power is being reduced.<br>- Contact your Garmin dealer for service. |

| Alert Message | Description | Action |
|---|---|---|
| **<LRU> DB ERR** | • <LRU> database error exists, where "<LRU> database" denotes the specific unit database. | • Replace or update database. |
| **<LRU> KEYSTK** | • <LRU> <KEY> is stuck. The <LRU> has detected the <KEY> key as stuck, where <LRU> and <KEY> denote a specific LRU and key. | |
| **<LRU> SERVICE** | • <LRU> needs service. Return unit for repair. | • Contact your Garmin dealer for service. Specific LRU should be serviced, where <LRU> denotes the specific LRU. |
| **<LRU> VOLTAGE** | • <LRU> has low voltage. Reducing power usage by dimming display, where <LRU> denotes the specific LRU and power is being reduced. | • Contact your Garmin dealer for service. |
| **MANIFEST** | • <LRU> software mismatch, communication halted. | • Contact your Garmin dealer for service. |
| **NAV1/2** | • Communication with NAV1/2 is lost.<br>• No navigation receiver 1/2 data. | • Switch to alternate navigation (GPS or otherwise) if available. |

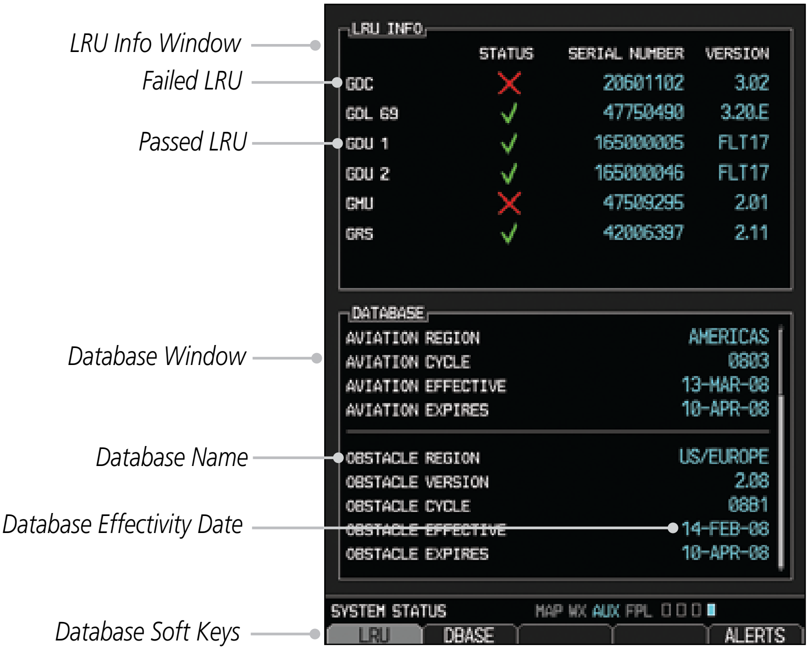
| Alert Message | Description | Action |
|---|---|---|
| **NO RADAR DATA** | - No data is being sent to the GDU | - Contact your Garmin dealer for service. |
| **RADAR CONTROLS DISAGREE** | - Data does not match for 15 seconds, or more | - Contact your Garmin dealer for service. |
| **SIMULATOR** | - Simulator mode is active. Do not use for navigation. | - Simulator mode is active. |
| **SVT DISABLED** | - Outside of terrain database coverage area.<br>- Terrain database resolution is too low. | - Repeat steps to reactivate SVT with the appropriate PFD soft keys.<br>- Install 9 arc-second database. |
| **SW MISMATCH** | - GDU software version mismatch. No GDU crossfill. | - Contact your Garmin dealer for service. |
| **TDB** | - Airframe does not support Terrain database. | |
| **TERRAIN DSP** | - Terrain, airport terrain, or obstacle database error in TAWS B or TERRAIN-SVT only. | - Update database. |
| **TRAFFIC FAIL** | - Traffic device has failed.<br>- Traffic data will no longer be displayed. | - Contact your Garmin dealer for service. |
| **TRAFFIC STBY** | - Traffic is in Standby Mode while airborne. | - Check traffic system controls on the MFD traffic map page or traffic system. |

| Alert Message | Description | Action |
|---|---|---|
| **TRK LOST** | - Heading and track from active GPS lost. HSI is using secondary GPS track. | |
| **TRK TRAFFIC** | - Heading Lost. Traffic is now based on track. | |
| **WX RDR SERVICE** | | - Contact your Garmin dealer for service. |
| **WXR INPUT FAULT** | | - Contact your Garmin dealer for service. |

**Table 6-1 Alert Messages**

## 6.2 System Status

The System Status page of Aux mode shows the status, serial number, and software version of LRUs and the date of databases. There are no menu pages. In the LRU Status column, a green check means the unit is present and operating properly, while a red "X" indicates an absence or failure.


LRU Info Window
Failed LRU
Passed LRU
Database Window
Database Name
Database Effectivity Date
Database Soft Keys
SYSTEM STATUS
MAP WX AUX FPL
LRU
DBASE
ALERTS

LRU INFO

| | STATUS | SERIAL NUMBER | VERSION |
|---|---|---|---|
| GDC | ✗ | 20601102 | 3.02 |
| GDL 69 | ✓ | 47750490 | 3.20.E |
| GDU 1 | ✓ | 165000005 | FLT17 |
| GDU 2 | ✓ | 165000046 | FLT17 |
| GMU | ✗ | 47509295 | 2.01 |
| GRS | ✓ | 42006397 | 2.11 |

DATABASE

| | |
|---|---|
| AVIATION REGION | AMERICAS |
| AVIATION CYCLE | 0803 |
| AVIATION EFFECTIVE | 13-MAR-08 |
| AVIATION EXPIRES | 10-APR-08 |
| OBSTACLE REGION | US/EUROPE |
| OBSTACLE VERSION | 2.00 |
| OBSTACLE CYCLE | 0801 |
| OBSTACLE EFFECTIVE | 14-FEB-08 |
| OBSTACLE EXPIRES | 10-APR-08 |

**Figure 6-1 System Status**

# 7 SYMBOLS

The following tables describe the symbols that are found on the MFD Map displays.

## 7.1 Map Page Symbols

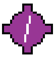
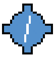
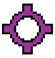
| Symbol | Description |
|---|---|
| | Unknown Airport |
| | Non-towered, Non-serviced Airport |
| | Towered, Non-serviced Airport |
|  | Non-towered, Serviced Airport |
|  | Towered, Serviced Airport |
|  | Soft Surface, Serviced Airport |
| | Soft Surface, Non-serviced Airport |
| | Private Airport |
| | Heliport |
| | Intersection |
| | LOM (compass locator at outer marker) |
| | NDB (Non-directional Radio Beacon) |
| | VOR |
| | VOR/DME |
| | ILS/DME or DME-only |
| | VORTAC |
| | TACAN |

Table 7-1 Map Page Symbols

## 7.2 SafeTaxi™ Symbols

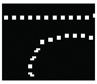
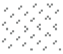
| Symbol | Description |
|---|---|
| | Helipad |
| | Airport Beacon |
|  | Under Construction Zones |
|  | Unpaved Parking Areas |

Table 7-2 SafeTaxi Symbols

## 7.3 Traffic Symbols

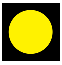
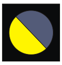
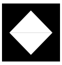
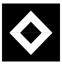
| Symbol | Description<br>(Highest to Lowest Priority) |
|---|---|
|  | Traffic Advisory (TA), In Range |
|  | Traffic Advisory (TA), Out of Range |
|  | Proximate Advisory (PA) |
|  | Other Traffic |

Table 7-3 Traffic Symbols

## 7.4 Terrain Obstacle Symbols

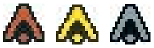
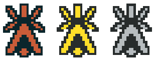
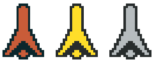
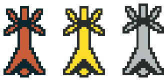
| Unlighted Obstacle (Height is less than 1000 ft AGL) | Lighted Obstacle (Height is less than 1000 ft AGL) | Unlighted Obstacle (Height is greater than 1000 ft AGL) | Lighted Obstacle (Height is greater than 1000 ft AGL) |
|---|---|---|---|
|  |  |  |  |

Table 7-4  Obstacle Altitude/Color Correlation

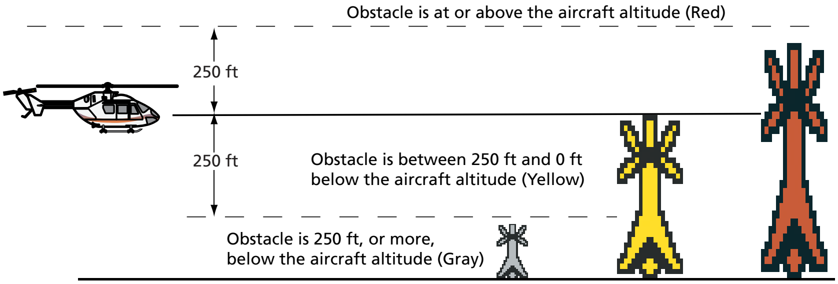

Obstacle is at or above the aircraft altitude (Red)
250 ft
250 ft
Obstacle is between 250 ft and 0 ft below the aircraft altitude (Yellow)
Obstacle is 250 ft, or more, below the aircraft altitude (Gray)

Figure 7-1  Obstacle Altitude Correlation

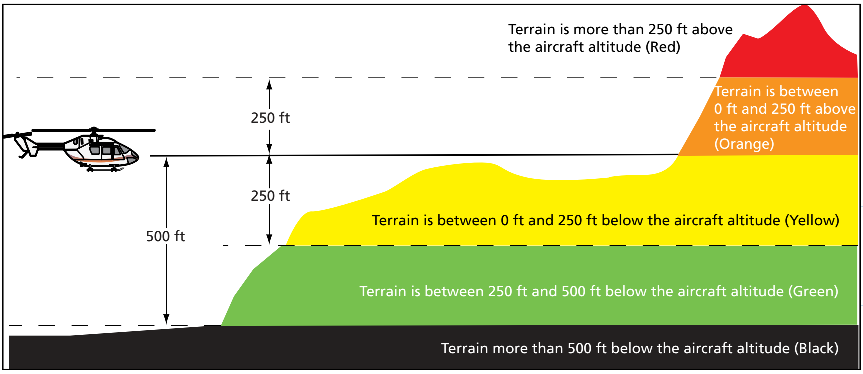

Terrain is more than 250 ft above the aircraft altitude (Red)
Terrain is between 0 ft and 250 ft above the aircraft altitude (Orange)
250 ft
250 ft
500 ft
Terrain is between 0 ft and 250 ft below the aircraft altitude (Yellow)
Terrain is between 250 ft and 500 ft below the aircraft altitude (Green)
Terrain more than 500 ft below the aircraft altitude (Black)

Figure 7-2  TERRAIN Altitude/Color Correlation

S

## 7.5 Basemap Symbols

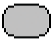
| Symbol | Description |
|---|---|
| | Interstate Highway |
|  | State Highway |
| | US Highway |
| | National Highway - 2-digit drawn inside |
| | Small City or Town |
| | Medium City |
| | Large City |

Table 7-5 Basemap Symbols

## 7.6 Map Tool Bar Symbols

| Symbol | Description |
|---|---|
| | Terrain Proximity Enabled and Available Indicator |
| | Terrain Proximity Enabled and Not Available Indicator |
| | Traffic Enabled and Available Indicator |
| | Traffic Enabled and Not Available Indicator |

Table 7-6 Map Tool Bar Symbols

## 7.7 XM Weather Tool Bar Symbols

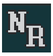
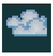
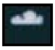
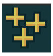
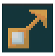
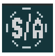
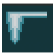
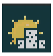
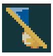
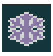
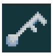
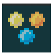
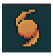
| Symbol | Description |
|---|---|
|  | NEXRAD |
|  | Cloud Top (Cloud Top and Echo Top Mutually Exclusive) |
|  | Echo Top (Cloud Top and Echo Top Mutually Exclusive) |
|  | XM Lightning |
|  | Cell Movement |
|  | SIGMETs / AIRMETs |
|  | METARs |
|  | City Forecast |
|  | Surface Analysis |
|  | Freezing Levels |
|  | Winds Aloft |
|  | County Warnings |
|  | Cyclone Warnings |

Table 7-7 XM Weather Tool Bar Symbols

## 7.8 Miscellaneous Symbols

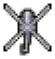
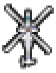
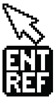
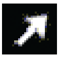
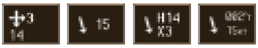
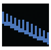
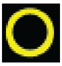
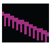
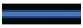
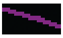
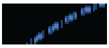
| Symbol | Description |
|---|---|
|  | Rotary Wing, Piston |
|  | Rotary Wing, Turbine |
| | Default Map Cursor |
|  | Measuring Cursor |
|  | MFD Wind Vector (w/ valid GPS solution) |
|  | PFD Wind Vector styles |
| | Parallel Track Waypoint |
|  | Restricted/Prohibited/Warning/Alert |
|  | TFR (Temporary Flight Restrictions) |
|  | MOA |
|  | Class B Airspace |
|  | Class C Airspace |
|  | Class D Airspace |
| | User Waypoint |

Table 7-8 Miscellaneous Symbols

# 8 GLOSSARY

| | |
|---|---|
| ACT, ACTV | active, activate |
| ADC | Air Data Computer |
| ADF | Automatic Direction Finder |
| ADI | Attitude Direction Indicator |
| AFF | Automatic Flight Following |
| AFM | Airplane Flight Manual |
| AFMS | Airplane Flight Manual Supplement |
| AGL | Above Ground Level |
| AHRS | Attitude and Heading Reference System |
| AIM | Airman's Information Manual |
| AIRMET | Airman's Meteorological Information |
| ALT | altitude |
| AP | autopilot |
| APR | approach |
| APT | airport, aerodrome |
| ARINC | Aeronautical Radio Incorporated |
| ARSPC | airspace |
| ARTCC | Air Route Traffic Control Center |
| AS | airspeed |
| ASOS | Automated Surface Observing System |
| ATC | Air Traffic Control |
| ATCRBS | ATC Radar Beacon System |
| ATIS | Automatic Terminal Information Service |
| AUX | auxiliary |
| AWOS | Automated Weather Observing System |
| BARO | barometric setting |
| BC | backcourse |
| Bearing | The compass direction from the present position to a destination waypoint |
| BRG | bearing |
| C | center runway |
| °C | degrees Celsius |
| CDI | Course Deviation Indicator |
| CHNL | channel |
| CLD | cloud |
| CLR | clear |
| CONFIG | configuration |

| | |
|---|---|
| Course | The line between two points to be followed by the aircraft |
| Crosstrack Error | The distance the aircraft is off a desired course in either direction, left or right |
| CRS | course |
| CRSR | cursor |
| CTA | Control Area |
| CTRL | control |
| CUM | The total of all legs in a flight plan. |
| | |
| D ALT | density altitude |
| DB, DBASE | database |
| DCLTR, DECLTR | declutter |
| deg | degree |
| DEP | departure |
| Desired Track (DTK) | The desired course between the active “from” and “to” waypoints |
| DEST | destination |
| DFLT | default |
| DIS | distance |
| Distance | The ‘great circle’ distance from the present position to a destination waypoint |
| DME | Distance Measuring Equipment |
| DP | Departure Procedure |
| DPRT | departure |
| DSBL | disabled |
| DTK | Desired Track |
| | |
| EDR | Excessive Descent Rate |
| ELEV | elevation |
| EMI | Electromagnetic Interference |
| ENR | en route |
| En Route Safe Altitude | The recommended minimum altitude within ten miles left or right of the desired course on an active flight plan or direct-to |
| ENT | enter |
| ERR | error |
| ESA | En route Safe Altitude |
| ETA | Estimated Time of Arrival |
| ETE | Estimated Time En Route |

| | |
|---|---|
| °F | degrees Fahrenheit |
| FAA | Federal Aviation Administration |
| FCC | Federal Communication Commission |
| FCST | forecast |
| FD | flight director |
| FIS-B | Flight Information Services-Broadcast |
| FISDL | Flight Information Service Data Link |
| FLTA | Forward Looking Terrain Avoidance |
| FPL | flight plan |
| FREQ | frequency |
| FRZ | freezing |
| FSS | Flight Service Station |
| ft | foot/feet |
| | |
| G/S, GS | glideslope |
| GDC | Garmin Air Data Computer |
| GDL | Garmin Satellite Data Link |
| GDU | Garmin Display Unit |
| GEO | geographic |
| GLS | Global Navigation Satellite Landing System |
| GMA | Garmin Audio Panel System |
| GMT | Greenwich Mean Time |
| GMU | Garmin Magnetometer Unit |
| GPS | Global Positioning System |
| GPSS | GPS Roll Steering |
| Ground Speed | The velocity that the aircraft is travelling relative to a ground position |
| Ground Track | *see Track* |
| GRS | Garmin Reference System |
| GS | Ground Speed |
| GTX | Garmin Transponder |
| | |
| HDG | heading |
| Heading | The direction an aircraft is pointed, based upon indications from a magnetic compass or a properly set directional gyro |
| HFOM | Horizontal Figure of Merit |
| Hg | mercury |
| hPa | hectopascal |
| HPL | Horizontal Protection Level |

| | |
|---|---|
| HSDB | High-Speed Data Bus |
| HSI | Horizontal Situation Indicator |
| Hz | Hertz |
| IAF | Initial Approach Fix |
| ICAO | International Civil Aviation Organization |
| IFR | Instrument Flight Rules |
| IGRF | International Geomagnetic Reference Field |
| ILS | Instrument Landing System |
| IMC | Instrument Meteorological Conditions |
| IOI | Imminent Obstacle Impact |
| INFO | information |
| in HG | inches of mercury |
| INT | intersection(s) |
| INTEG | integrity (RAIM unavailable) |
| ITI | Imminent Terrain Impact |
| L | left, left runway |
| LAT | latitude |
| LCD | Liquid Crystal Display |
| LCL | local |
| LED | Light Emitting Diode |
| Leg | The portion of a flight plan between two waypoints |
| LIFR | Low Instrument Flight Rules |
| LNAV | Lateral Navigation |
| LOC | localizer |
| LOI | loss of integrity (GPS) |
| LON | longitude |
| LPV | Localizer Performance with Vertical guidance |
| LRU | Line Replacement Unit |
| LT | left |
| LTNG | lightning |
| MAG | Magnetic |
| MAG VAR | Magnetic Variation |
| MapMX | A proprietary data format used to forward navigation information from the GNS units to the GDU 620 |
| MAX | maximum |
| MAXSPD | maximum speed (overspeed) |

| | |
|---|---|
| MDA | barometric minimum descent altitude |
| METAR | Aviation Routine Weather Report |
| MFD | Multi Function Display |
| MIN | minimum |
| Minimum Safe Altitude | Uses Grid MORAs to determine a safe altitude within ten miles of the aircraft present position |
| MKR | marker beacon |
| MOA | Military Operations Area |
| MOV | movement |
| mpm | meters per minute |
| MSA | Minimum Safe Altitude |
| MSG | message |
| MSL | Mean Sea Level |
| MT | meter |
| mV | millivolt(s) |
| MVFR | Marginal Visual Flight Rules |

| | |
|---|---|
| NAV | navigation |
| NAVAID | NAVigation AID |
| NCR | Negative Climb Rate |
| NDB | Non-Directional Beacon |
| NEXRAD | Next Generation Radar |

| | |
|---|---|
| OAT | Outside Air Temperature |
| OBS | Omni Bearing Selector |

| | |
|---|---|
| PA | Proximity Advisory |
| PC | personal computer |
| PDA | Premature Descent Alert |
| PFD | Primary Flight Display |
| P. POS | Present Position |
| PTK | parallel track |

| | |
|---|---|
| QTY | quantity |

| | |
|---|---|
| R | right, right runway |
| RAIM | Receiver Autonomous Integrity Monitoring |
| RAM | random access memory |
| REF | reference |
| REQ | required |
| REV | reverse, revision, revise |
| RMI | Radio Magnetic Indicator |
| RNG | range |
| RNWY | runway |
| ROC | Reduced Required Obstacle Clearance |
| RT | right |
| RTC | Reduced Required Terrain Clearance |
| | |
| SBAS | Satellite-Based Augmentation System |
| SCIT | Storm Cell Identification and Tracking |
| SD | Secure Digital |
| SFC | surface |
| SIAP | Standard Instrument Approach Procedures |
| SID | Standard Instrument Departure |
| SIGMET | Significant Meteorological Information |
| SLP/SKD | slip/skid |
| SMBL | symbol |
| SPD | speed |
| SRVC, SVC | service |
| STAR | Standard Terminal Arrival Route |
| STATS | statistics |
| STBY | standby |
| STD | standard |
| SUA | Special Use Airspace |
| SUSP | suspend |
| SVT | Synthetic Vision |
| SW | software |
| SYS | system |
| | |
| T | true |
| TA | Traffic Advisory |
| TACAN | Tactical Air Navigation System |
| TAF | Terminal Aerodrome Forecast |
| TAS | True Airspeed |
| TAS | Traffic Advisory System |

| | |
|---|---|
| TAT | Total Air Temperature |
| TAWS | Terrain Awareness and Warning System |
| TCA | Terminal Control Area |
| TCAS | Traffic Collision Avoidance System |
| TEMP | temperature |
| TERM | terminal |
| TFR | Temporary Flight Restriction |
| T HDG | True Heading |
| TIS | Traffic Information System |
| TMA | Terminal Maneuvering Area |
| Topo | topographic |
| Track | Direction of aircraft movement relative to a ground position; also 'Ground Track' |
| TRK | track |
| TRSA | Terminal Radar Service Area |
| | |
| UNAVAIL | unavailable |
| USR | user |
| UTC | Coordinated Universal Time |
| UTM/UPS | Universal Transverse Mercator/ Universal Polar Stereographic Grid |
| | |
| V, Vspeed | velocity (airspeed) |
| VAR | variation |
| VFR | Visual Flight Rules |
| VHF | Very High Frequency |
| VLOC | VOR/Localizer Receiver |
| VMC | Visual Meteorological Conditions |
| VNAV, VNV | vertical navigation |
| VOR | VHF Omni-directional Range |
| VORTAC | very high frequency omnidirectional range station and tactical air navigation |
| VS | Vertical speed |
| VSI | Vertical Speed Indicator |
| | |
| WAAS | Wide Area Augmentation System |
| WGS-84 | World Geodetic System - 1984 |
| WPT | waypoint(s) |
| WX | weather |

| | |
|---|---|
| XPDR | transponder |
| XTK | cross-track |

# APPENDIX A

## SD Card Use and Databases

The G500H System uses Secure Digital (SD) cards to load and store various types of data. For basic flight operations, SD cards are required for database storage as well as database updates.

| Database Name | Function | Where Stored | Update Cycle | Provider | Notes |
|---|---|---|---|---|---|
| Aviation | Airport, NAVAID, Waypoint, and Airspace information | Internal GDU 620 memory | 28 days (on Thursdays) | fly.garmin.com | Updates installed via SD card and copied into internal memory |
| IGRF model | AHRS magnetic variation model | Internal GRS 77 memory | 5 years | fly.garmin.com | Included with Aviation database |
| SafeTaxi | Airport surface diagrams | SD card | 56 days (on Thursdays) | fly.garmin.com | |
| Terrain | Topographic map, SVT, Terrain/TAWS | SD card | As required | fly.garmin.com | 9 arc-second version required for SVT |
| Airport Terrain | Topographic map, SVT, Terrain/TAWS | SD card | As required | fly.garmin.com | Not required with 9 arc-second Terrain database |
| Obstacle | Obstacle information for map, SVT, and TAWS | SD card | 56 days (on Thursdays) | fly.garmin.com | |
| Basemap | Boundary and road information | Internal Memory or SD card | As required | fly.garmin.com | |
| Airport Directory | Airport facility and FBO information | SD card | 56 days | fly.garmin.com | Database may be available in different versions. Update cycle and content may vary. |
| FliteCharts | FAA-published terminal procedures | SD card | 28 days (on Thursdays) | fly.garmin.com | Disables 180 days after expiration date. |
| ChartView | Jeppesen terminal procedures | SD card | 14 days (on Fridays) | Contact Jeppesen | Optional feature that requires Garmin dealer enablement. Disables 70 days after expiration date. |

**Table A-1 Database List**

# Jeppesen Databases

The aviation database is updated on a 28 day cycle. Aviation database updates are provided by Garmin and may be downloaded from the Garmin web site "fly.garmin.com" onto a Garmin provided Supplemental data card. Contact Garmin at fly.garmin.com for navigation database updates and update kits. The aviation database is stored internally and the data card is only used to transfer the database into the unit.

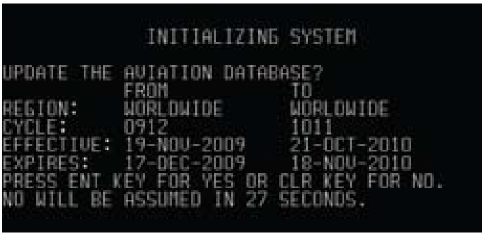
The optional ChartView database is updated on a 14 day cycle. The ChartView database is provided directly from Jeppesen. ChartView is an optional feature that requires enablement by a Garmin dealer. Contact Jeppesen (www.jeppesen.com) for ChartView subscription and update information.

## Updating the Jeppesen Aviation Database

1) With the G500H System OFF, insert the SD card containing the aviation database update into the upper card slot of the GDU 620 to be updated (label of SD card should face up).

2) Turn the G500H System ON.

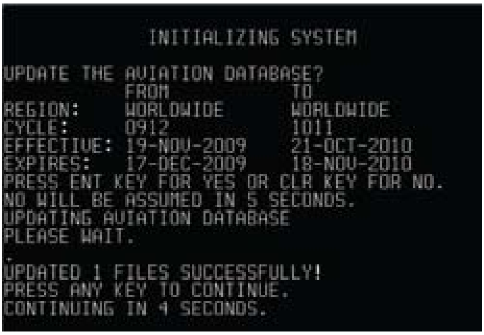
3) Verify the correct update cycle is loaded during power-up. Press the **ENT** key to continue or the **CLR** key to cancel loading.



```
                INITIALIZING SYSTEM
UPDATE THE AVIATION DATABASE?
           FROM             TO
REGION:    WORLDWIDE        WORLDWIDE
CYCLE:     0912             1011
EFFECTIVE: 19-NOV-2009      21-OCT-2010
EXPIRES:   17-DEC-2009      18-NOV-2010
PRESS ENT KEY FOR YES OR CLR KEY FOR NO.
NO WILL BE ASSUMED IN 27 SECONDS.
```

**Figure A-1  Database Initialization Display**

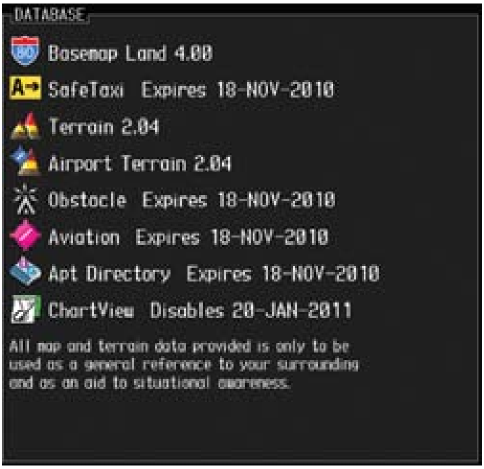
4) A notice on the display will indicate successful updating of the database.



```
               INITIALIZING SYSTEM
UPDATE THE AVIATION DATABASE?
          FROM             TO
REGION:   WORLDWIDE        WORLDWIDE
CYCLE:    0912             1011
EFFECTIVE: 19-NOV-2009     21-OCT-2010
EXPIRES:  17-DEC-2009      18-NOV-2010
PRESS ENT KEY FOR YES OR CLR KEY FOR NO.
NO WILL BE ASSUMED IN 5 SECONDS.
UPDATING AVIATION DATABASE
PLEASE WAIT.
.
UPDATED 1 FILES SUCCESSFULLY!
PRESS ANY KEY TO CONTINUE.
CONTINUING IN 4 SECONDS.
```

**Figure A-2 Database Loading Completed**

5) The following display will show the databases and their current status.



```
DATABASE
Basemap Land 4.00
SafeTaxi  Expires 18-NOV-2010
Terrain 2.04
Airport Terrain 2.04
Obstacle  Expires 18-NOV-2010
Aviation  Expires 18-NOV-2010
Apt Directory  Expires 18-NOV-2010
ChartView  Disables 20-JAN-2011
All map and terrain data provided is only to be
used as a general reference to your surrounding
and as an aid to situational awareness.
```

**Figure A-3 Database Information on the Splash Screen**

6) Use the large **MFD** knob to select the AUX page group and then small **MFD** knob to reach the System Status Page.

7) Press the **DBASE** soft key to place the cursor in the "DATABASE" window.

8) Turn the small **MFD** knob to scroll through the list and check that all databases are current and there are no errors. If a database is highlighted in yellow, it is either expired or the G500H can not determine the date.

9) Power down the GDU 620.

## Garmin Databases

***WARNING:** The data contained in the terrain and obstacle databases comes from government agencies. Garmin accurately processes and cross-validates the data, but cannot guarantee the accuracy and completeness of the data.*

The following GDU 620 databases are stored on Supplemental Data Cards provided by Garmin:

- Terrain – The terrain database contains terrain mapping data. It is updated periodically and has no expiration date.
- Airport terrain – The airport terrain database contains detailed airport terrain data. It is updated periodically and has no expiration date.
- Obstacle – The obstacle database contains data for obstacles, such as towers, that pose a potential hazard to aircraft. It is very important to note that not all obstacles are necessarily charted and therefore may not be contained in the obstacle database. This database is updated on a 56-day cycle. Obstacles will still be shown after the database has expired.
- SafeTaxi – The SafeTaxi database contains detailed airport diagrams for selected airports. These diagrams aid in following ground control instructions by accurately displaying the aircraft position on the map in relation to taxiways, ramps, runways, terminals, and services. This database is updated on a 56-day cycle. SafeTaxi will still be shown after it has expired.
- FliteCharts – The FliteCharts database contains procedure charts for the United States only. This database is updated on a 28-day cycle. If not updated within 180 days of the expiration date, FliteCharts no longer functions.

After subscribing to the desired database product, the database product will need to be downloaded to a Supplemental Data Card. Insert the Supplemental Data Card into the card slot shown in Figure A-4. The upper slot is typically used for updating the navigation database and is then normally left open. The card may be inserted in either slot. The Supplemental Data Card should not be removed except to update the databases stored on the card.

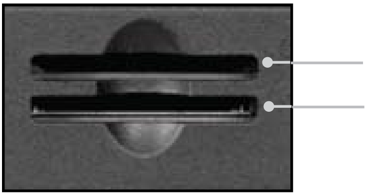

Navigation Database SD Update Card
Terrain, Obstacles, Airports, SafeTaxi, Charts (FliteChart or ChartView) Database SD Card

**Figure A-4 SD Card Database Location**

The Garmin databases can be updated by following the instructions detailed in the “Navigation Databases” section of the Garmin web site (*fly.garmin.com*). Once the updated files have been downloaded from the web site, a PC equipped with an appropriate SD card reader is used to unpack and program the new databases onto the existing Supplemental Data Cards. The following equipment is required to perform the update:

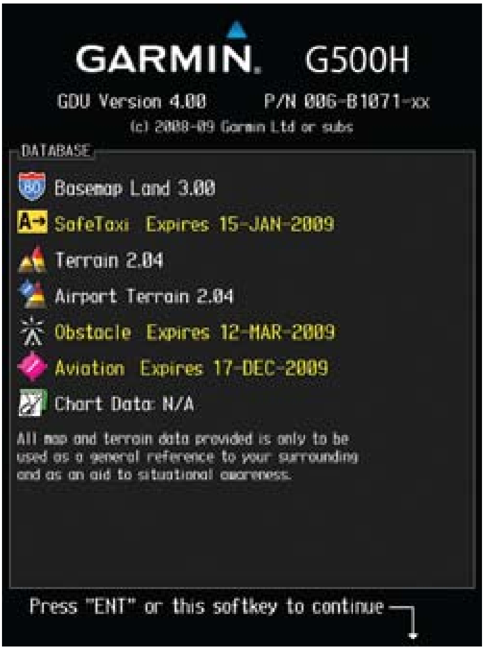
- Windows-compatible PC computer (Windows 2000, XP, Vista, or Windows 7 recommended)
- SanDisk SD Card Reader, P/Ns SDDR-93 or SDDR-99 or equivalent card reader
- Updated database obtained from the Garmin web site
- Existing Supplemental Database SD Card (P/N 010-00769-42)

It may be necessary to have the system configured by a Garmin authorized service facility in order to use certain database features.

## Updating Garmin databases

1) Download the data to the data cards from the appropriate web site.
2) Insert Database SD card in an empty card slot of the GDU 620. The SD card containing the ChartView, FliteCharts, SafeTaxi, or any other database (except for the Jeppesen Aviation Database) is typically inserted into the lower slot on the GDU 620.
3) Apply power to the G500H System. View the MFD power-up splash screen. Check that the databases are initialized and displayed on the splash screen. When updating the terrain and FliteCharts databases, an “in progress” message may be seen. If this message is present, wait for the system to finish loading before proceeding. Some databases can take up to 15 minutes to update.

4) Acknowledge the Power-up Page agreement by pressing the **ENT** key or the right-most soft key. If a database is highlighted in yellow, it is either expired or the G500H can not determine the date.



GARMIN G500H

GDU Version 4.00 P/N 006-B1071-xx

(c) 2008-09 Garmin Ltd or subs

DATABASE

Basemap Land 3.00

SafeTaxi Expires 15-JAN-2009

Terrain 2.04

Airport Terrain 2.04

Obstacle Expires 12-MAR-2009

Aviation Expires 17-DEC-2009

Chart Data: N/A

All map and terrain data provided is only to be used as a general reference to your surrounding and as an aid to situational awareness.

Press "ENT" or this softkey to continue

**Figure A-5 Database Information on the Splash Screen**

5) Use the large **MFD** knob to select the AUX page group and then the small **MFD** knob to reach the System Status Page.

6) Press the **DBASE** soft key to place the cursor in the “DATABASE” window.

7) Turn the small **MFD** knob to scroll through the list and check that all databases are current and there are no errors.

8) Power down the GDU 620.

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